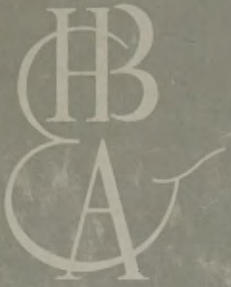
711.40973
P834b



COMPREHENSIVE PLAN

PORT ARTHUR, TEXAS

Return this book on or before the
Latest Date stamped below.

University of Illinois Library

DEC 12 1970

NOV 18 1963

L161—H41

THE COMPREHENSIVE CITY PLAN

Port Arthur, Texas

Prepared for the
CITY PLANNING AND ZONING COMMISSION

By
HARLAND BARTHOLOMEW AND ASSOCIATES
City Planners, Civil Engineers, Landscape Architects
St. Louis, Missouri

September, 1961

John K. Alston, Resident Planner

Digitized by the Internet Archive
in 2021 with funding from
University of Illinois Urbana-Champaign

https://archive.org/details/comprehensivecit00harl_0

711.40973
P834b

CITY COMMISSION

Smith P. Reynolds, Jr., Chairman
Dave Talley, Vice Chairman

R.P. Power
Zeb J. Spruiell

Jerry Nasits

C. P. Stewart, City Manager

CITY PLAN COMMISSION

Luther Kay, Jr., Chairman
Oscar Burton, Vice Chairman

D. K. Caldwell
Joe Zeppa
Leon Kent
Harold Stringer

Jack Woldert

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS - CIVIL ENGINEERS - LANDSCAPE ARCHITECTS
317 NORTH ELEVENTH STREET
SAINT LOUIS 1, MISSOURI
GARFIELD 1-2107

HARLAND BARTHOLOMEW
RUSSELL H. RILEY
HARRY W. ALEXANDER
ELDRIDGE LOVELACE
DONALD H. WOLBRINK
WILLIAM S. POLLARD, JR.

ASSOCIATES
CLAIRE AVIS
CHARLES P. CLAYTON
JOHN I. COFER
ERNEST W. COMBS
ROBERT B. JONES
J. ROBERT MOORE
FREDERIC M. ROBINSON
J. M. STEVENS
J. WOOD

September, 1961

City Planning and Zoning Commission
Port Arthur, Texas

Gentlemen:

We are pleased to submit herewith our report on the Comprehensive Plan of Port Arthur. Completion of the plan culminates two years of work by our office, the Planning and Zoning Commission, the City Commission and numerous public officials and citizens. The report summarizes the findings, conclusions and recommendations of the several reports on various phases of the plan submitted from time to time during its preparation and reflects the adjustments and modifications resulting from the numerous meetings held by our representatives with the Planning and Zoning Commission.

The plan presented herewith should serve as a guide for the development of Port Arthur for the next twenty to twenty-five years. It should be officially adopted and implemented by passage of the pending zoning ordinance and the other measures requiring action by the City Commission. To be fully effective it will be necessary to enlist the cooperation and support of the several incorporated communities within the Port Arthur urban area for those improvements of a regional nature, such as highways, drainage and recreation.

The plan should be made understandable to the people by discussing its provisions at frequent meetings with organizations and groups and by using available publicity media, such as radio and television programs and newspaper articles. When unforeseen events occur which affect any provisions of the plan, the appropriate adjustments to meet such changed conditions should be made--the plan is not intended to be inflexible but it should not be changed except for compelling reasons. The Planning and Zoning Commission must be supplied with a technical staff as recommended herein if the plan is to be properly administered.

The work of preparing the Port Arthur plan has been a rewarding experience, largely because of the interest and the cooperative attitude of all who had a part in the

undertaking. Members of the Planning and Zoning Commission have given unsparingly of their time in numerous meetings during the past two years and in doing so have performed an outstanding public service.

Submission of this report marks the end of one planning era and the beginning of another--that of carrying out the recommendations of the plan. The latter is by far the more important.

Respectfully submitted,

HARLAND BARTHOLOMEW AND ASSOCIATES

By Harry W. Alexander

TABLE OF CONTENTS

Page

INTRODUCTION 1

BACKGROUND OF THE PLAN 2
  Physical and Historical Facts 2
  Economic Background 5
  The Present Economic Base 6
  Future Economic Base 9

POPULATION 12
  Past Population Growth 12
  Future Population 12
  Objectives of Population Planning 13
  1960 Land Use 14
  Factors Influencing Future Population Distribution . 15
  Future Distribution of Population 17
  Future Density of Population 18

THE COMPREHENSIVE PLAN

LAND USE AND ZONING 20
  Land Use 21
  Land Use Areas 21
  Major Land Use Problems 25
  Future Land Use Requirements 26
  Future Land Use Plan 26
  Lot Area Per Family 27
  The Present Zoning Ordinance 27
  The Proposed Zoning Ordinance 28

MAJOR STREETS AND HIGHWAYS 30
  Types of Traffic 31
  Types of Streets and Highways 31
  Geometric Design Standards 32
  Existing Conditions 33
  The Present Street System 34
  Traffic Volumes 35
  Time and Delay 36
  Factors Influencing Major Street and Highway Location 39
  Present and Future Traffic Trends 40
  1985 Desire Flow 43
  Proposed Major Street and Highway Plan 45
  Subdivision Control 49

TRANSPORTATION 51
  Existing Transportation Facilities 51
  Proposed Transportation Plan 52
  Existing Port Development 55
  Proposed Port Development 57

Page

SCHOOLS, PARKS AND RECREATION. 60
Criteria for School and Park Planning. 60
Existing School and Park Facilities. 62
Existing Recreation Facilities 65
Proposed School Plan 65
Ultimate School Program. 66
Intermediate School Plan 67
Proposed Park Plan 67

PUBLIC SERVICES. 70
Existing Water System. 70
Proposed Water System. 72
Existing Sanitary Sewer System 73
Proposed Sanitary Sewer System 74
Existing Drainage System 75
Future Drainage Program. 75

PARKING. 77
Existing Parking Conditions. 77
Use of Existing Parking Facilities 79
Present and Probable Future Needs. 82
Proposed Parking Plan. 83

PUBLIC BUILDINGS 87
Existing Public Buildings. 87
Public Building Requirements 87
Criteria for Location of a Civic Center. 90
Proposed Public Buildings. 91

CITY'S APPEARANCE. 96
Appearance of Public Property. 96
Appearance of Private Property 100

PUBLIC WORKS 103
Financial Analysis 103
Ability to Finance Local Improvements. 106
Proposed Capital Improvement Program 107
Financing the Capital Improvement Program. 112

ADMINISTRATION 119
Present Planning Organization. 119
Measures Required to Build a City
According to a Plan. 119
Organization and Activities
of the City Planning and Zoning Commission 121

APPENDIX
TABULATION OF MAJOR STREETS AND HIGHWAYS

LIST OF PLATES
(Preceding Each Section)

Plate

Background and Population

1 Regional Influences--Sabine Neches Industrial District
2 Population Growth
3 Population Distribution, 1960
4 Population Density, 1960
5 Diagrammatic Land Use, 1960
6 Population Distribution, 1985

Land Use and Zoning

7 Diagrammatic Land Use, 1985

Major Streets and Highways

8 Right-of-Way Widths of Existing Major Streets
9 24-Hour Traffic Flow--1960
10 Factors Influencing Major Street and Highway Location
11 Traffic Generation Elements and Traffic Flow Trends
12 1985 Peak Hour Desire Flow
13 Proposed Major Street and Highway Plan
14 Suggested Street Cross-Sections

Transportation

15 Transportation Facilities--1960
16 Proposed Transportation Plan
17 Port of Port Arthur
18 Possible Development for Proposed Port Area

Schools, Parks and Recreation

19 General Standards for Recreational Facilities
20 Existing Schools and Parks
21 Past and Estimated Future School Memberships
22 Proposed Schools and Parks
23 General Development Plan--Pease School and Park Site

Public Services

24 Water Distribution System
25 Sanitary Sewer System
26 Storm Drainage

Parking

27 Existing Land Use and Building Coverage
28 Existing Parking Facilities
29 Parking Space Availability
30 Proposed Parking Facilities

(cont'd)

Plate

Public Buildings

31 Existing Public Buildings
32 Proposed Civic Center
33 Proposed Public Buildings Plan

City's Appearance

34 Entrances to the City
35 School Buildings
36 Public Buildings
37 Semipublic Buildings
38 Parking Lots

Public Works and Administration

39 Past Trends in Municipal Finances
40 Capital Improvement Program

The Comprehensive Plan
(see back cover)

LIST OF TABLES
(Following Each Section)

Table

Background and Population

1 Labor Force and Employment
2 Comparison and Non-Agricultural Employment by Major Categories
3 Retail Sales and Effective Buying Income
4 Comparative Retail and Wholesale Trade Development
5 Past Growth of Population
6 Estimates of Future Population
7 Population and Density by Statistical District

Land Use and Zoning

8 Areas Occupied by Existing Land Use
9 Present and Probable Future Land Use Needs

Schools, Parks and Recreation

10 Existing School Facilities
11 Capacity and Enrollment of Schools
12 Sizes of Existing Sites Compared with Standard Areas
13 Membership Trend
14 Resident Birth Data
15 Estimated Future School Memberships

Public Services

16 Trends in Water Consumption
17 Population and Water Consumption

Parking

18 Existing Parking Facilities in the Central Business District
19 Percentage of Cars Parking for Various Time Periods During Average Week Day in the Central Business District
20 Length of Time Vehicles Parked
21 Summary of Answers to Customer Parking Questionnaires
22 Summary of Answers to Employee Parking Questionnaires
23 Present Parking Demand in Study Area as Determined from Vacancy Study Analysis
24 Summary of Proposed Parking Facilities
25 Financial Analysis of Proposed Parking Program

Public Works and Administration

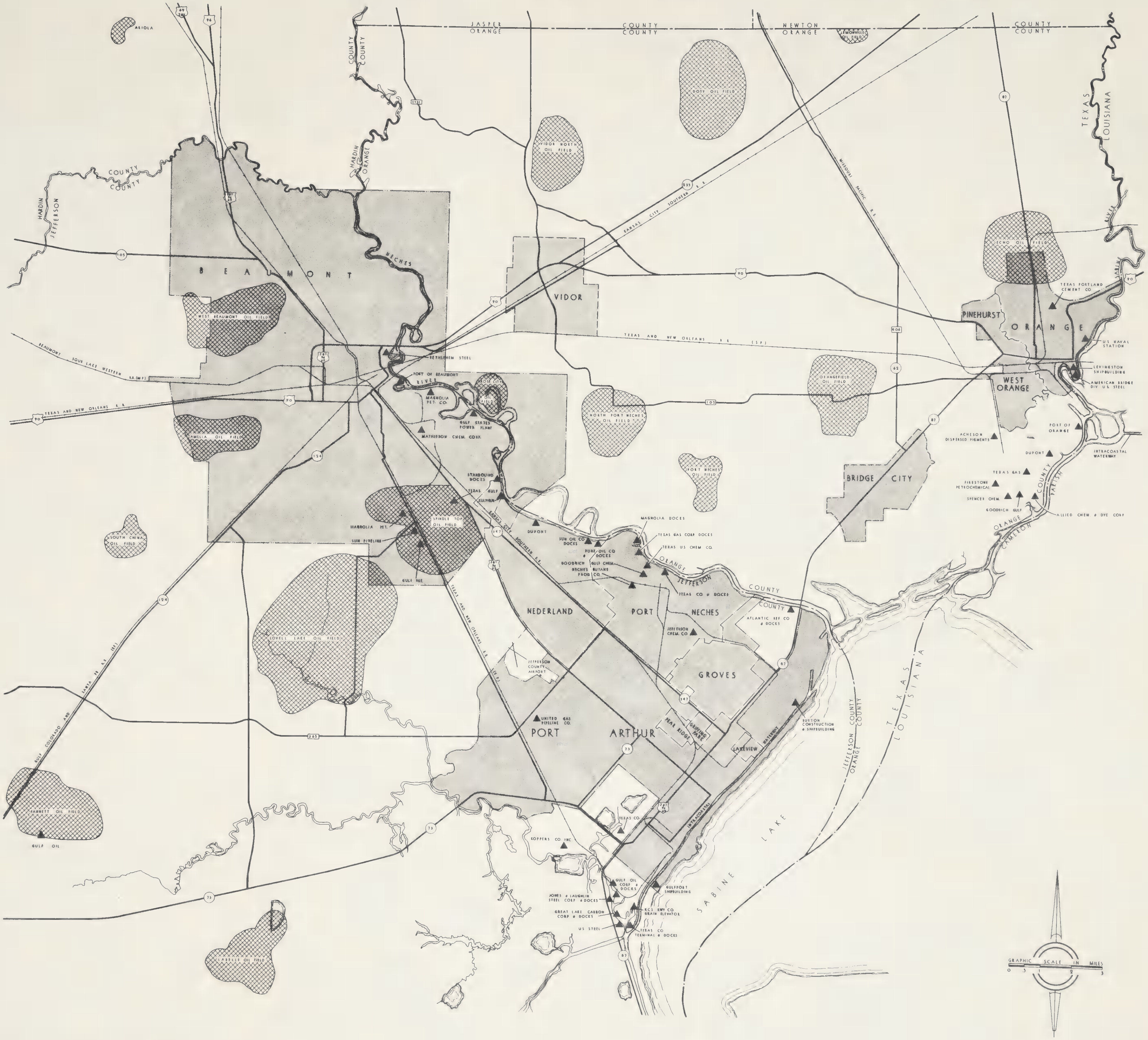
26 Trend in Revenues and Expenditures
27 Trend in School District Revenues and Expenditures
28 Assessed Values and Tax Rates, 1951-1961
29 Trend of Net General Obligation Bonded Debt
30 General Obligation Debt Requirements
31 Suggested Bond Program, 1961-62 Through 1965-66
32 Effect of Bond Program
33 Estimate of Tax Levy--All Purposes
34 Estimated Operation, Debt Service Requirement and Tax Levy Port Arthur Independent School District

LIST OF SKETCHES

Page

1 Geographic Location. 2
2 Area Served by Sewer and Water 15
3 Location of New Subdivisions, 1950-60. 16
4 Areas Suitable for Residential Development . . . 18
5 Past Major Street Improvements, 1950-60. 35
6 Time and Delay Study--CBD, Gulf, Texaco. 36
7 Time and Delay Study--Koppers. 37
8 Time and Delay Study--Atlantic 38
9 Time and Delay Study--Neches Butane. 39
10 1985 Corridor 24-Hour Desire Flow. 44
11 1985 Capacity-Deficiency. 45
12 Proposed 16th Street--Highway 87 Relocation. . . 47
13 1959 Inbound Traffic, Sabine-Neches Waterway . . 55
14 Plan "B" Hurricane Protection System 76
15 Comparative Property Values. 78
16 Civic Center Location Map. 91

REGIONAL INFLUENCES
SABINE - NECHES INDUSTRIAL DISTRICT

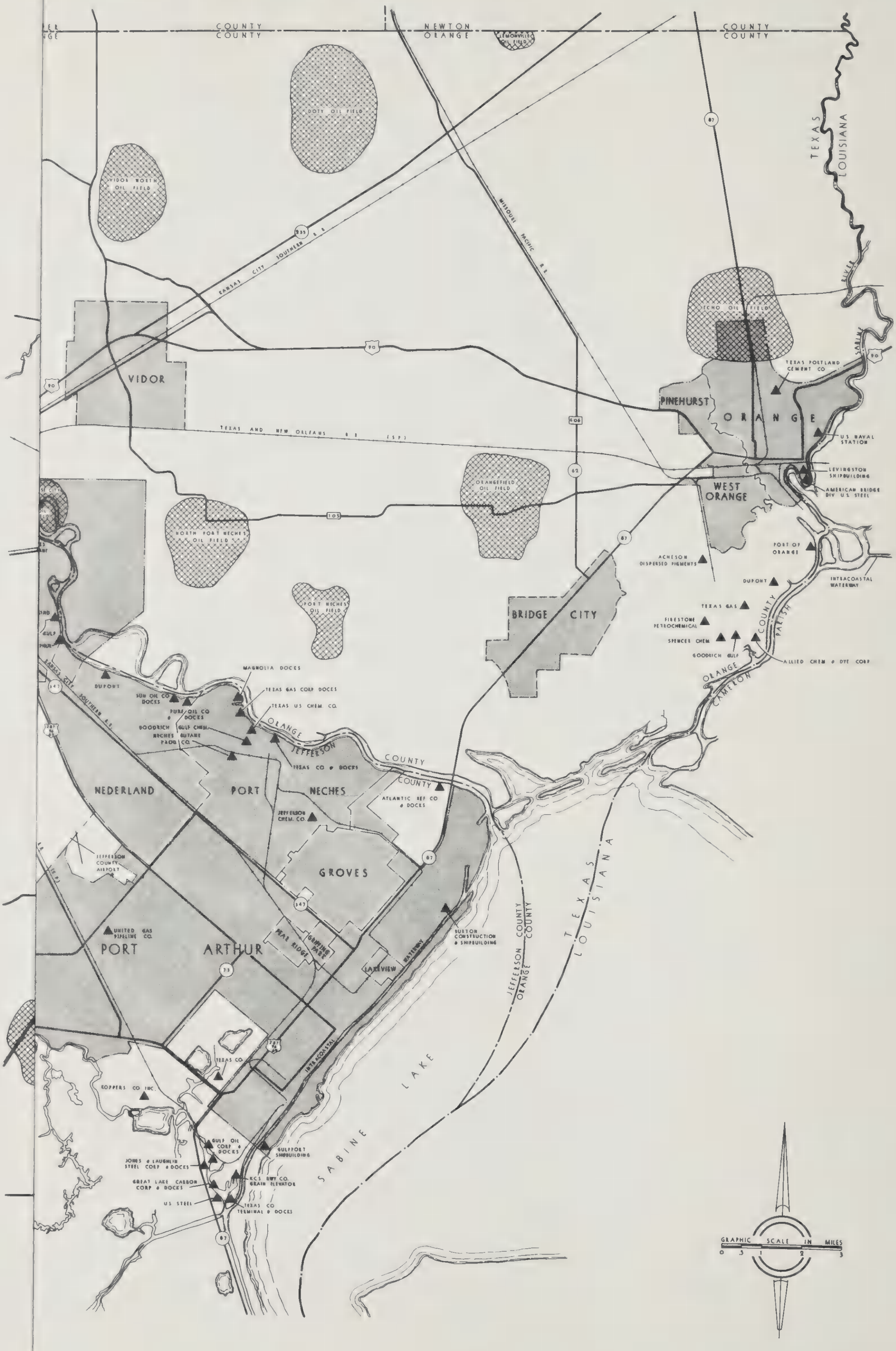


CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 1

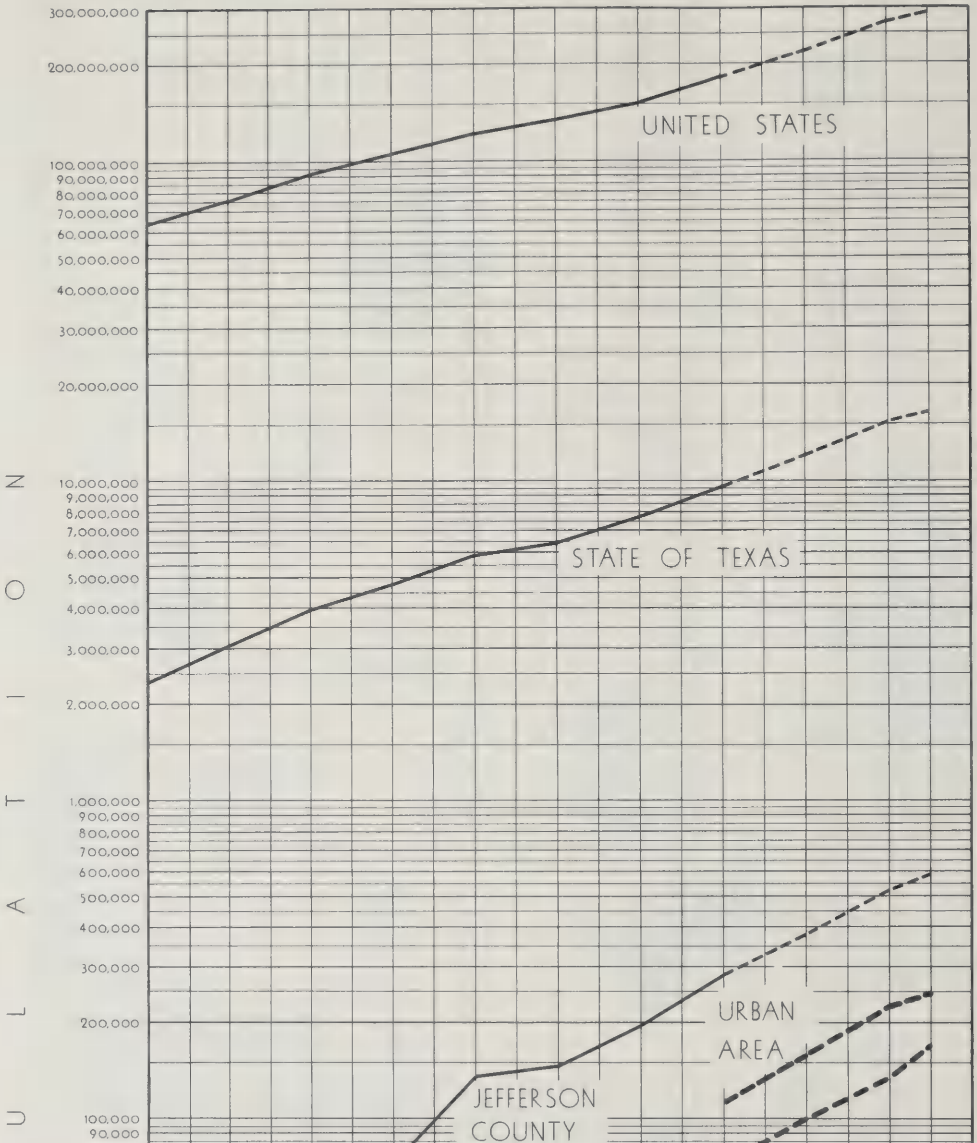
AL INFLUENCES
INDUSTRIAL DISTRICT



CIT
PO

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 1



POPULATION GROWTH

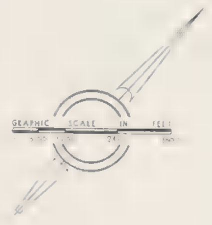
CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

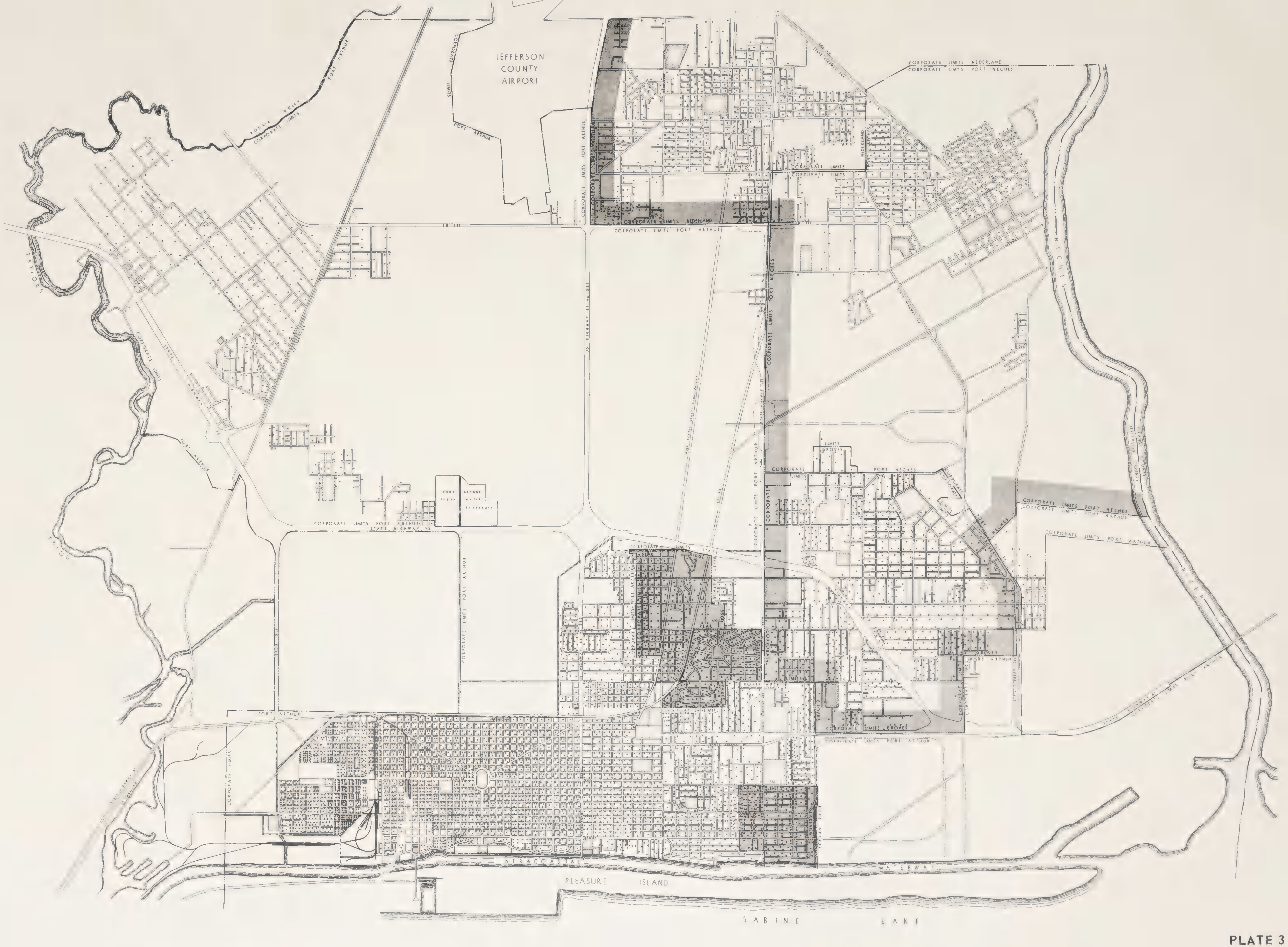
HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 2

POPULATION DISTRIBUTION 1960

EACH DOT EQUALS 20 PERSONS





PORT ARTHUR, TEXAS AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
FEBRUARY 1960 SAINT LOUIS MISSOURI

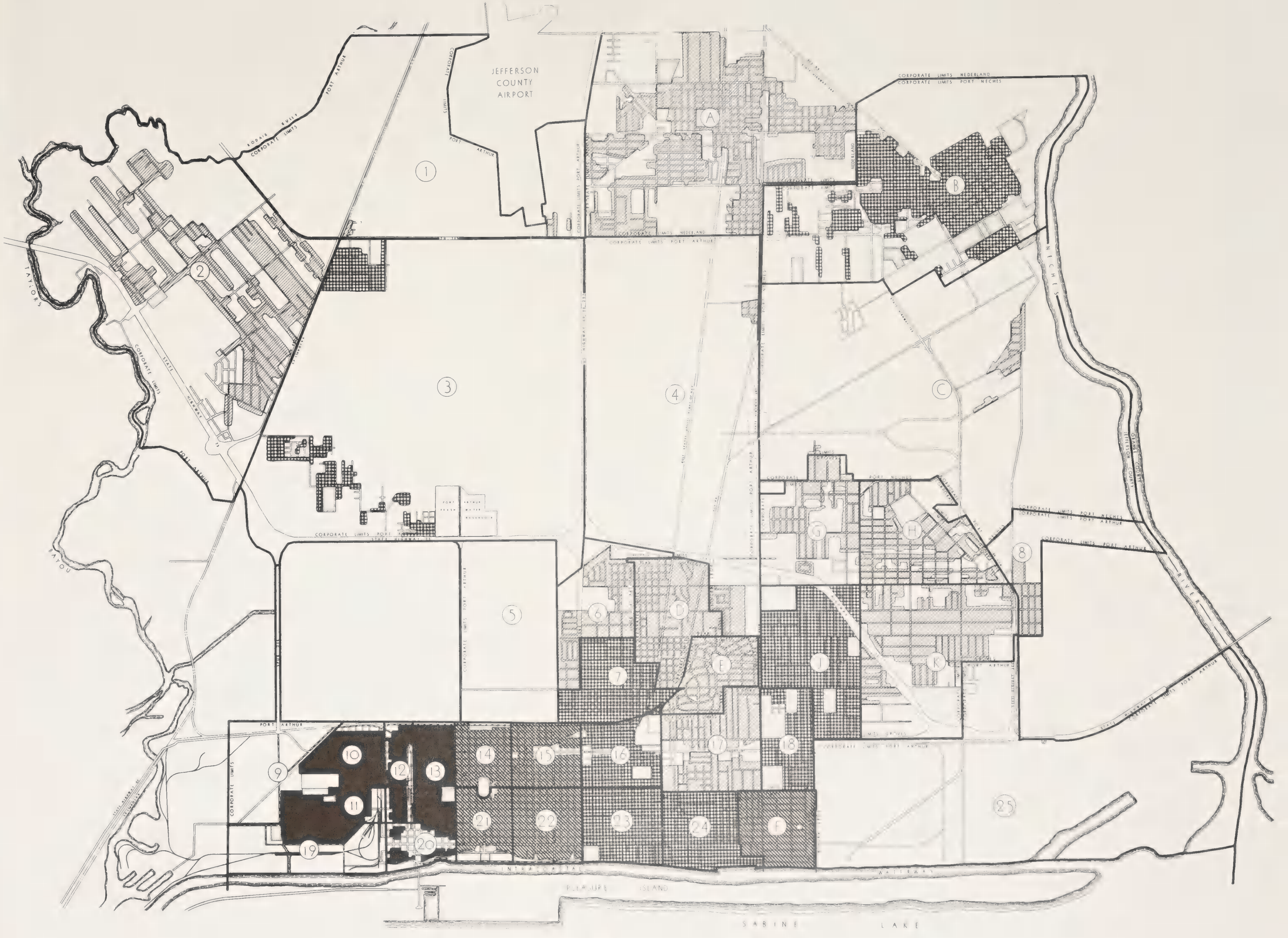
PLATE 3

POPULATION DENSITY 1960

LEGEND

- ⬚ LESS THAN 5.00 PERSONS PER ACRE
- ▨ 5.00 TO 10.00 PERSONS PER ACRE
- ▦ 10.00 TO 15.00 PERSONS PER ACRE
- ▧ 15.00 TO 20.00 PERSONS PER ACRE
- ■ 20.00 OR MORE PERSONS PER ACRE

NOTE BLANK AREAS WITHIN DISTRICT BOUNDARIES HAVE BEEN EXCLUDED FROM NET DENSITY CALCULATIONS.



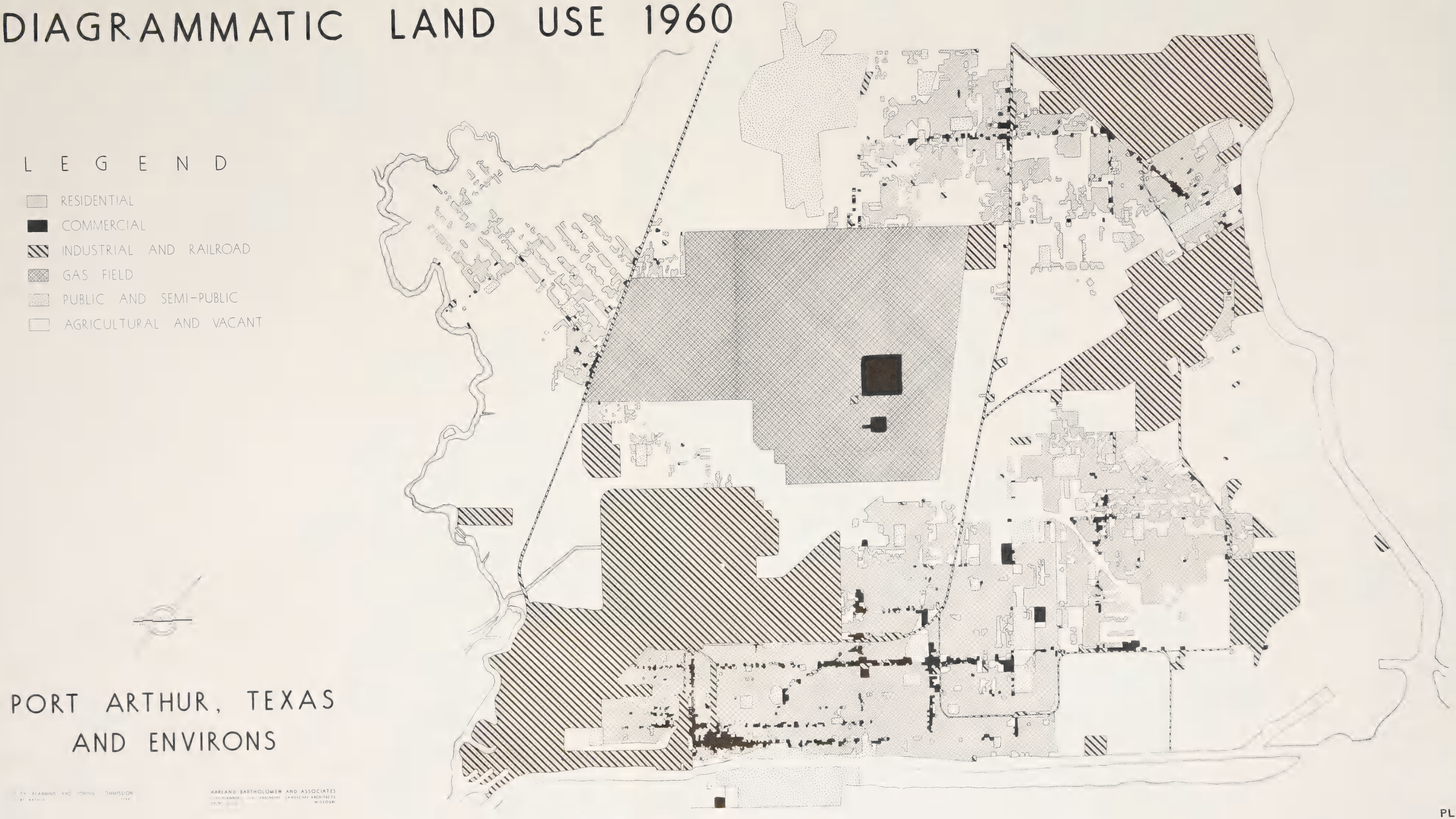
PORT ARTHUR, TEXAS AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 4

DIAGRAMMATIC LAND USE 1960



PORT ARTHUR, TEXAS AND ENVIRONS

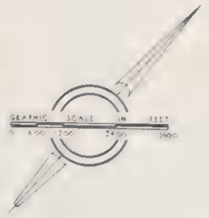
CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS CIVIL ENGINEERS LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 5

POPULATION DISTRIBUTION 1985

EACH DOT EQUALS 20 PERSONS



PORT ARTHUR, TEXAS AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
FEBRUARY 1960 SAINT LOUIS MISSOURI

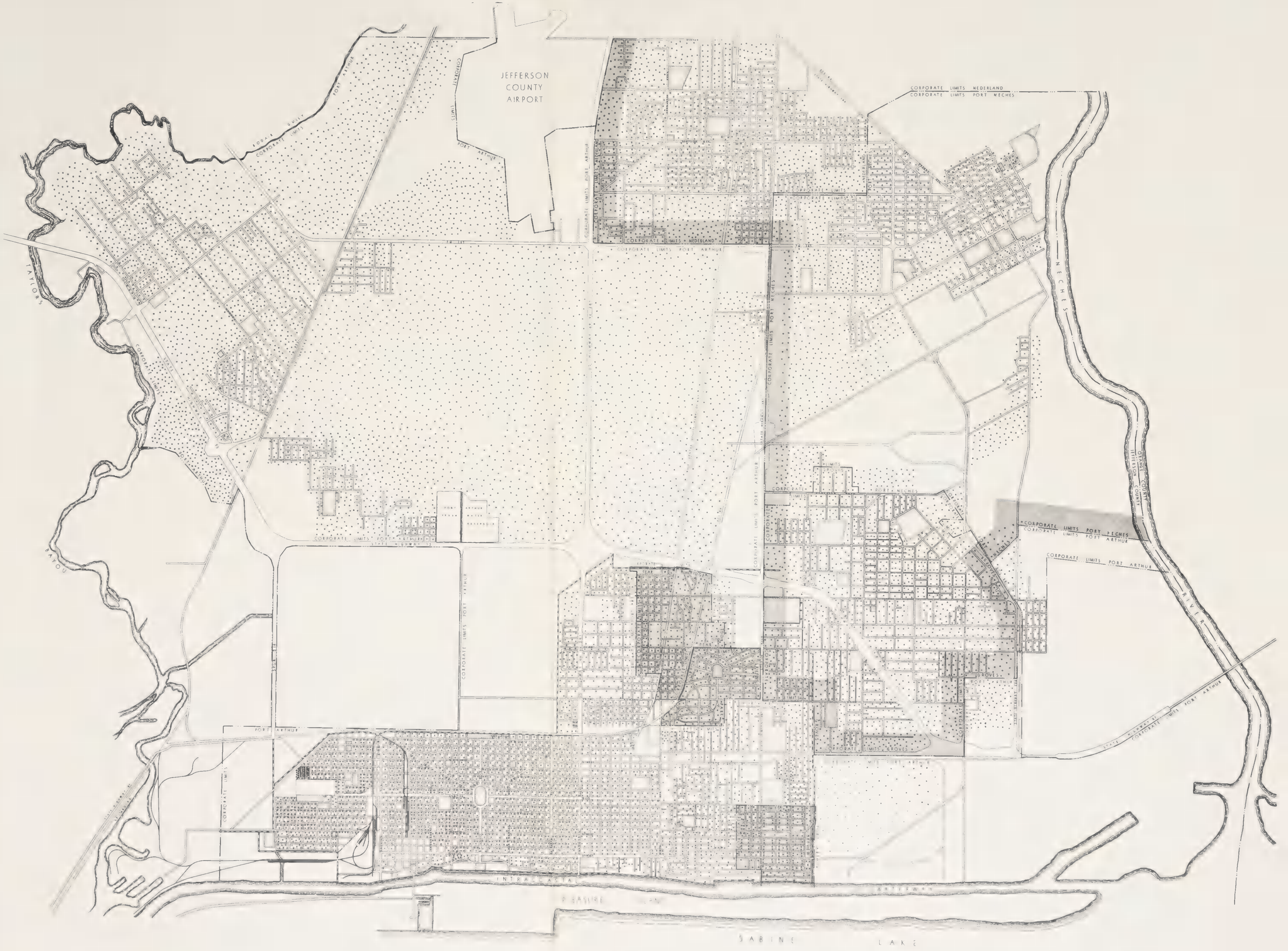


PLATE 6

INTRODUCTION

The Comprehensive Plan presented herewith represents two years work on the part of the consultants, the Planning and Zoning Commission, numerous public officials and many private citizens. Its preparation has been a community effort and, while in an undertaking so broad in scope, complete unanimity of opinion on every detail obviously could not be obtained, there is little difference of opinion on its basic principles and objectives.

The plan is intended to provide a guide for the development of Port Arthur during the next twenty to twenty-five years. To the greatest extent possible, the plan combines the idealistic and the practical with the ultimate objective being to create a community that the citizens will be proud of because of its beauty, convenience and efficiency.

The growth of Port Arthur, the peculiar aspects of its physical characteristics, its geographic location, and the lack of previous planning, all have contributed to the creation of serious problems. The solution of these problems will require concerted effort on the part of public officials and citizens of the community in order that the provisions of the plan are carried out as expeditiously as possible.

The plan is principally directed toward securing the coordinated physical development of the community. More specifically these are the arrangement of its residential, commercial and industrial land uses, the pattern of its trafficways, areas for its schools and parks, and places for its public buildings. Such a plan will permit maximum benefits to be received from those expenditures made for public and private improvements during the next two decades.

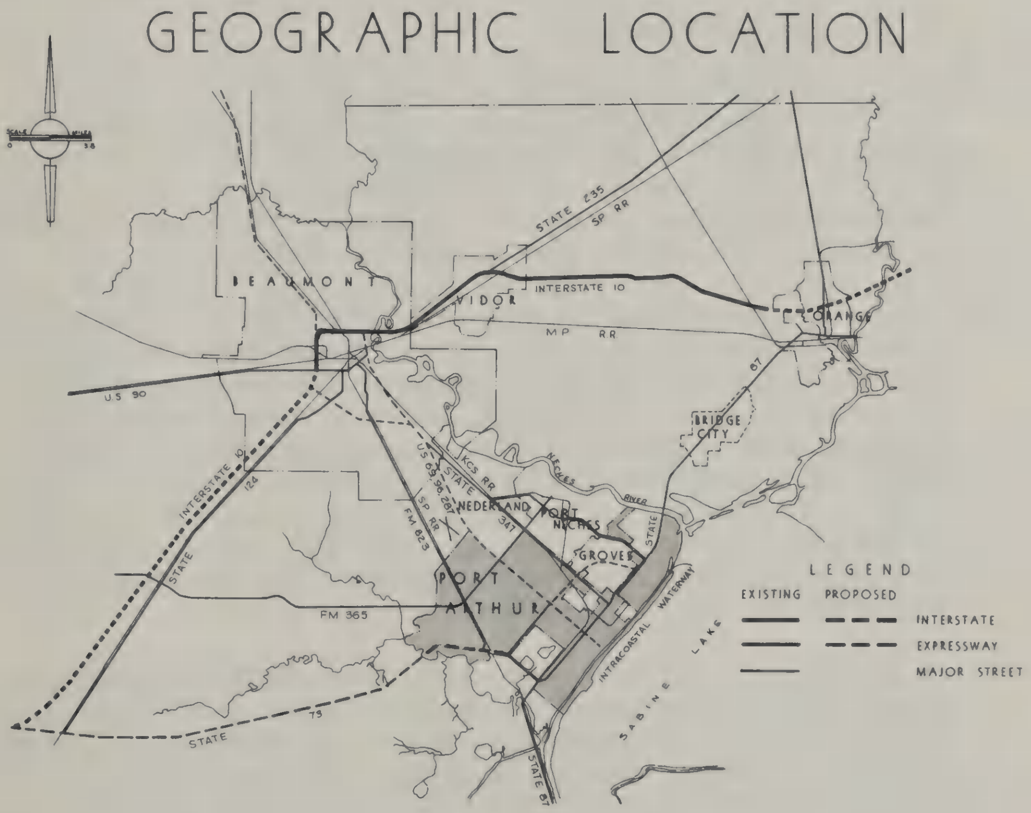
The CITIZENS of Port Arthur have the power to determine whether the future community will be one in which they will be proud to live and rear their children or whether it will become a nondescript, inefficient, and unattractive city. The plan contained herein should be a challenge and an inspiration to these citizens. Implementation of the plan will not take place automatically. It will require a strong organization, ably directed and dedicated to the welfare of the community as a whole, which will devote its time to keeping the sound objectives of the plan constantly in public view in order that they may not be obscured by demands of special interest groups and by political expediency.

BACKGROUND OF THE PLAN

Physical and Historical Facts*

Location

Port Arthur is located on the western shore of Sabine Lake in the extreme southeastern corner of Texas. The surrounding terrain is marshy, as opposed to the flat terrain of west Texas and the rolling, wooded topography of northeastern Texas. The city's elevation varies between two feet and fourteen feet above sea level.



The importance of industry and shipping is emphasized by Port Arthur's geographic location shown on the preceding sketch.

---

*Preliminary Report, "Background for Planning", dated February, 1960, Harland Bartholomew and Associates.

The Kansas City Southern and the Southern Pacific Railroads provide both freight and passenger service as well as "piggy-back" truck transportation for less-than-carload shipments. Five truck lines also provide Port Arthur with freight service. Delta Airlines, Eastern Airlines, and Trans-Texas Airways provide freight and passenger service to Port Arthur. The Greyhound Bus Company provides service to the city.

U.S. Highways 69, 96, and 287 connect Port Arthur and Beaumont and provide access with cities to the north and northeast. State Highways 73, 87, and 347 are also a part of Port Arthur's street system. Highway 73 connects to Interstate Highway 10, 21 miles west of Port Arthur at Winnie and is presently being raised to freeway standards. State Route 87 connects Port Arthur to Galveston to the southwest and Orange to the northeast.

Historical Background

In 1838, John Sparks and his family settled at the mouth of the Sabine River. Their first home was on Pavell's Island at the junction of the Sabine and Neches Rivers. Sparks moved in 1853 and built the first home in the townsite known as Aurora. Five years later his original 160 acres had grown to 260 acres.

The Civil War brought hardships to the residents of lower Jefferson County. The danger of invasion by federal troops from the Gulf of Mexico was ever present. Although no troops passed through Aurora, many traveled down the Sabine and East Texas Railroad, or passed offshore as they were transported by boat from Beaumont to the Sabine Pass. Fighting in Louisiana was sufficiently close to bring the threat of actual warfare to the citizens of the small community. The Battle of Sabine Pass also brought the war to the home front.

The winter of 1895 saw the townsite platted. The same year also saw the beginning of construction of a canal, but it was 1899 before the waterway was put into service. This canal, as well as a railroad, had the financial support of a group headed by Arthur E. Stilwell. The railroad named the Kansas City, Pittsburg, and Gulf had its terminal at the head of Procter Street and was completed on September 11, 1897. Another of Stilwell's interests was the famed Pleasure Pier constructed during this same "boom era".

Toward the end of 1897 a census was taken--population, 1,100. It was decided to vote on incorporation which was accomplished on March 29, 1898. Soon after, a new figure appeared in Port Arthur history. His name was John Warne Gates, better known as John "Bet-a-Million" Gates. He, like Stilwell, was a financier with tremendous capital.

On January 10, 1901, "Spindletop" blew in with the first gusher and the largest oil well of its day on the American Continent. This brought about another tremendous surge in building and the Standard Oil Company accepted a free offer of an 80-acre tract for a waterfront refinery. The expansion had been so rapid that by 1904 the five docks already in use were inadequate.

The port and the refineries accounted for most of the business activity of the town. The total value of shipments, foreign and coastwise, for the period 1900-1905 was set in excess of $40,000,000 and the town's population had surged to 5,200.

Everything had been done on a large scale. The townsite was laid out for a city of 100,000 persons or more. Broad streets and avenues crossed at right angles. A public park was reserved across the entire front of the lake. A large modern hotel had been erected. Population in 1908 was now 8,000.

By 1914 Port Arthur had become the 12th ranking port in the United States, the second largest oil refining point in the country and had grown in population to 12,600. The total foreign shipment for 1915 totaled $29,270,771.

Commercial statistics issued by the U.S. Engineers at the end of 1938 placed Port Arthur seventh among all U.S. ports with exports and imports of 19,286,486 tons and valued at $258,566,824. Included in the exports in addition to petroleum and oil products were corn, wheat, scrap iron, zinc, and machinery and vehicles.

Another tremendous change was brought about by World War II. The need for oil and petroleum products caused considerable expansion. This growth has continued until today Port Arthur contains 81.6 square miles and a population of 70,210 persons with an additional 44,160 persons in smaller communities contiguous to Port Arthur.

Topography, Geology and Soils

The surface of Jefferson County is typical of the coastal plain, being generally level and presenting few distinct physical features. The land was built from deposits brought from higher elevations by streams and later exposed when the waters of the Gulf receded.

The highest elevation in the county is 46 feet above sea level in the northwest section near Nome. From the northern part of the county, the ground slopes gradually southward to a great level tract of salt marsh barely one foot above sea level. An example of this marsh can be seen adjoining the Neches River and the Intracoastal Waterway near the eastern city limits.

Several distinct types of soil can be found in the Port Arthur area, the predominant surface soils being fine sandy loams, clay loams, silt deposits and muck, all underlain by a deep stratum of clay. The most common type of surface soil is the fine sandy loam averaging 12 to 14 inches deep, which is found upon practically all the higher land which can be drained by gravity. The marshes bordering the Neches River, Taylor's Bayou, and the Intracoastal Waterway are composed entirely of alluvial soil and the open marshes are largely muck with a high percentage of silt.

The Port Arthur area is characterized by long summers where the temperature rarely exceeds 100 degrees Fahrenheit, but as a rule the heat and accompanying high humidity are tempered by the breezes from the Gulf. The winters are short and mild but during January and February sudden drops in temperature can be expected. These drops seldom exceed a 30 degree Fahrenheit low and a rise can be expected within a short time.

Economic Background

Major Economic Areas

One of Port Arthur's principal assets is its geographic location. While the population of the United States has doubled between 1900 and 1950, the population of the west-south-central States of Texas, Louisiana, Arkansas and Oklahoma has increased about two and one-fourth times. Of these states, Texas and Louisiana have experienced continual growth while Arkansas and Oklahoma lost population. Within Texas, as with most states, the most rapid growth has been in the urban and metropolitan areas. The best assurances of continued growth in Texas are the existing and rapidly developing processing industries utilizing raw materials and the diversified manufacturing and service activities.

Population increases for the United States, the west-south-central states and Texas have been forecast to the year 2000. These estimates were developed by the University of Texas, Bureau of Business Research, from projections and data of the Bureau of Census, the Texas Research League, and the Bureau of Agricultural Economics. Texas is expected to increase at a more rapid rate than the nation or the west-south-central states. Texas population should increase 57 percent between 1950 and 1975, and 41 percent between 1975 and 2000.

The Port Arthur, Beaumont and Orange Area

No city is an independent, self-sustaining economic unit. The functions of a city are integrated into an economic, physical, and social system with adjacent cities and urbanized areas. Any evaluation of Port Arthur as an industrial area cannot be limited to the city proper. Port Arthur, in common with all industrial communities, includes all areas both inside and outside the city limits in which industry is a contributory factor.

The three cities of Port Arthur, Beaumont, and Orange form an area known as the "Golden Triangle". Plate 1 has been prepared to show the Sabine-Neches Industrial District and factors which will influence future development in the area. The "Golden Triangle" is comprised of two large cities, Port Arthur and Beaumont, and four smaller cities, Orange, Nederland, Port Neches, and Groves. The entire area offers exceptional opportunities for many new industries because of its almost limitless natural resources. Included are the great forests, rich mineral deposits, including petroleum, natural gas, salt, sulphur, brick and ceramic clays, glass, sands, and many others.

Port Arthur, Beaumont, and Orange, all have deep water ports. The importance of the Sabine-Neches Industrial District is emphasized by the fact that the district is third in tonnage in the United States.

The area supports two colleges with two more which are barely 100 miles distant. Port Arthur College located in Port Arthur and the Lamar State College of Technology located in Beaumont provide excellent educational facilities. Rice Institute and the University of Houston, both located in Houston, offer additional facilities.

The Present Economic Base

The extent, size, and number of persons employed by basic industry is dependent upon the location of raw materials, the amount of natural resources, available transportation media, and the general wealth and population of the trade area. Basic industry and the occupations it provides is also affected by national trends and conditions, such as economic depressions, technological developments, conditions due to war, and large movements of population. Many other activities also influence the city's economic base in the form of legislation, freight rate structure, and taxation policies. The city can often direct these varied events to its advantage through the combined action of its citizens and local organizations.

Labor Force and Employment

Table 1 shows that during the past 20 years, approximately 41 percent of the population of Port Arthur have been in the labor force. A similar percentage has prevailed in Jefferson County and for the State of Texas. Table 1 also shows substantial gains have been experienced in the percent of the labor force employed since 1940. In 1940, female employees comprised nearly 20 percent of the labor force in Port Arthur. In 1950 that figure had risen to slightly more than 26 percent.

Distribution of Employment

One of the main prerequisites for a stable economic base is a well-diversified basic industrial structure. Table 2 shows by percentages the employment distribution and also the relative increases between 1940 and 1959 in these various categories. The largest increases in this period have been in chemical and allied products, construction, and government. Only business and personal services have shown a decrease in both numbers and percent; however, petroleum and coal products have dropped off 16.5 percent, but these employees have increased by 7,817 persons. Table 2 also shows 83.1 percent of all persons in basic employment gain their livelihood in the petroleum and coal products, and in chemicals and allied products industries.

Retail and Wholesale Trade

Table 3 shows the comparison of retail sales and effective buying income for Port Arthur and Jefferson County. Inspection of Table 3 shows Port Arthur accounting for $74,946,000 of the total $230,934,000 in Jefferson County, or 32 percent of retail sales in 1950. This figure had risen to 34 percent in 1958, or $102,531,000 of the total $299,503,000 for Jefferson County.

The per capita effective buying income for Port Arthur for the same eight-year period has increased from $1,536 to $1,812. Both of these per capita figures were higher than those of the county as a whole.

Table 4 shows the comparative retail and wholesale trade development in Port Arthur and Jefferson County for 1939, 1948, and 1954. Although Port Arthur has experienced a decrease in the number of retail establishments during the period 1948-54, payrolls had increased by approximately 2.3 million dollars, the number of employees had increased slightly, and sales had shown an increase of almost $20,000,000. The large volume and payroll increases in wholesale trade show the importance of that segment of the city's economy.

Industry

Comparative industrial development is shown on the following table.

Comparative Industrial Growth
Jefferson County

	1939	1947	1954
Number of Establishments	114	150	187
Employees	12,082	23,181	25,480
Payroll	N.A.	$60,488,000	$125,107,000
Value added by Mfgr.	$68,905,000	$177,508,000	$222,107,000

N.A.: Not available.
Source: U.S. Census of Manufactures

Jefferson County and Port Arthur's importance as an industrial center is indicated by the value added to products by manufacturing which amounted to over 222 million dollars in 1954. Industrial development has increased to 187 firms and the number of employees and payroll have increased substantially. Major industries located in the Sabine-Neches Industrial District are shown on Plate 2.

Petroleum Products

The discovery of oil at Spindletop in 1901 brought a phenomenal industrial "boom" to Jefferson County and the Sabine area. Five refineries have been established as a result of Spindletop and subsequent discoveries. Three of these are the largest manufacturing systems of their respective companies. Together they represent more than 10 percent of the total petroleum refining capacity of the United States. In Port Arthur alone, 14,000 persons are employed in the petroleum industry.

Port Facilities

The fact that Port Arthur is located on the Intracoastal Waterway is significant in that the waterway's 36-foot depth permits "through traffic" or "port traffic" by practically all tankers and freighters. The annual cargo tonnage of this district frequently exceeds that of any other customs district in the United States with the exception of the Port of New York. Principal commodities handled by the port are bulk and packaged petroleum and petroleum products.

Agriculture

The most important agricultural crop in Port Arthur's trade area is rice. This is to be expected since Jefferson County is one of the state's leading rice producing counties and produces 12.7 percent of the Texas rice crop on 18.8 percent of the state's rice growing land. The six southwestern parishes of Louisiana produce 60 percent of that state's rice crop.

Future Economic Base

The future prosperity of Port Arthur and the Sabine-Neches Industrial District will largely depend upon the region's ability to capitalize on its advantages and to overcome its disadvantages. The Comprehensive Plan, by recognizing the city's assets its defects and problems, can lead to a stronger, more stable economic base. Zoning, land subdivision regulations, and urban renewal processes are all useful tools available to secure a stronger economic structure.

The following discussion of the area's more important advantages and disadvantages is of unusual importance and warrants careful attention:

Advantages

1. Port Arthur's strategic location with respect to transportation facilities is of great importance. It is located on the Intracoastal Waterway, a navigable river, and is a major port. Two major railroads offer service through Beaumont where products can be shipped in many directions. The accessibility to the Interstate Highway System and the raising of other existing highways in the area to expressway standards will open any part of the area to new population and industry. The area is also served by three major airlines.

2. The entire district offers exceptional opportunities for new industries because of its natural resources, such as wood, petroleum, natural gas, salt, and sulphur.

3. Port Arthur's recent annexations provide extensive new area for expansion. Although some of this area presently is unfit for development, much of it can be reclaimed for commercial and industrial uses.

4. The urban renewal project currently underway is attempting to correct overcrowded, substandard areas. This process can be used to advantage in other locations and is a proven method of revitalizing "forgotten" areas.

5. The gas and oil potential of the area has not yet been realized. The city at present has in operation one gas well which is expected to produce approximately $130,000 in revenue annually. While this is but a small part of the annual benefits from this gas and oil rich area, it does illustrate the tremendous potential involved.

The secret to a "progressive" stamp on a community is in its desire to capitalize on its advantages and to realize its disadvantages. However, this alone is not enough. In recognizing its defects it is important that the community, as a whole, attempts to remove or relieve them so that the community will be a more enjoyable place in which to live and work.

Disadvantages

1. The establishment of a sound economic base requires a diversification of basic employment in the community. Lack of such diversification is perhaps the most critical economic problem in the Port Arthur area. Table 2 shows 83.1 percent, or 16,323 workers of a total 19,634 in the basic employment system, are employed in petroleum and coal products, and in chemicals and allied products industries. Of the 83.1 percent, 71.6 percent are in the petroleum and coal products industries. These statistics are based on the Texas Employment Commission's monthly report for November, 1959.

   New and diversified basic employment industries must be encouraged to locate in this area, if the future economic base is to be strengthened.

2. Although the Neches River, through the Lower Neches Valley Authority, ordinarily can supply ample fresh water to both the city proper and to industries in the area, there have been

instances when industries in the area have had to slow or stop operations because of the lack of available water. If prolonged, this situation could have a serious adverse effect on the possibility of new industries locating in this area.

Remedial measures will be very expensive. The McGee-Bend Dam project near Jasper is to cost in excess of $50,000,000, of which Congress has already made $18,000,000 available. The President has set 1963 or 1964 as a completion date. This project should correct most of the fresh water problem.

An alternative solution which can be investigated is a means of converting salt water to fresh water. There are a few conversion plants already in operation, and while still in the experimental stages they offer possibilities for supplementing the fresh water supply. The salt and chemicals removed during the process can be marketed for additional revenue. This process is quite costly but does warrant attention.

3. The Port Arthur Metropolitan Area, to a degree not found in many communities, consists of a number of incorporated communities and unincorporated areas, some of which are entirely surrounded by the central city. For political and other reasons it has been difficult in the past to obtain recognition of the fact that there is a community of interest that should transcend local aspirations. Working together to solve common problems will accomplish much more than if each community holds itself aloof from the group and goes its own way. The Comprehensive Plan should provide the means for obtaining this essential cooperation.

POPULATION

The Comprehensive Plan is designed to guide the development of Port Arthur during the next 25 years. The purpose of this chapter is to estimate the probable future population and to designate the probable and appropriate location for this expected growth. The arrangement of residential, commercial, and industrial land uses and related parks, streets, schools, and other public facilities depends upon results of the population studies, for there is a definite relationship between the amount of land needed for urban purposes and the number of people residing in the community.

Past Population Growth

The past growth of population for the United States, the State of Texas, Jefferson County, and Port Arthur is shown by Table 5 and Plate 2. The population growth curve of the United States since 1900 has been regularly upward at a constant rate except between 1930 and 1940. The growth curves of Texas, Jefferson County, and Port Arthur have also shown the same trend but at a slightly more rapid rate. Port Arthur grew very rapidly during its first 30 years of life, the population increasing from 900 in 1900 to over 50,000 in 1930. A 751 percent increase was experienced in the 10-year period, 1900-10.

A study based on the 1950 Census, the number of dwellings at the time, and the average of 3.4 persons per occupied dwelling unit, plus the recently completed land use survey, provides the basis for estimating a population of 70,210 for Port Arthur as of January 1, 1960. The entire south county or "planning area" was estimated to have a population of 115,610 as of January 1, 1960. The 1960 Bureau of Census population for Port Arthur was 66,676. However, a difference of definition of the term family could account for the variance of totals.

Future Population

Table 6 summarizes the results of several investigations made to arrive at an estimated future population figure for Port Arthur.

Based upon the average rate of change between the population of the United States and Jefferson County, the latter should attain a population of 587,480 by 1985. The population estimates derived for the urban area and for Port Arthur as part of the urban area, i.e. 248,500 and 150,840, were used in the Comprehensive Plan.

Objectives of Population Planning

Three principles should be applied in the planning of a population distribution and density. These are:

1. The population should be arranged in a relatively even pattern around a common center to facilitate movement and convenience for the people, and to allow the economical provision of utilities and services.
2. Residential development should be continuous and fairly compact so as to avoid vacant tracts and partially settled subdivisions.
3. The density of population should be low enough to permit plenty of light and air and living space to the residents.

Population Distribution

The 1960 population distribution in the Port Arthur urban area is shown on Plate 3. The distribution was determined from the occupied dwelling units from the land use survey.

An examination of Plate 3 shows that the major portion of the population in Port Arthur is confined to the area within the levee. Outside of the levee the population is dispersed into the several communities contiguous to Port Arthur. There is a distinct cleavage in the distribution between the Cities of Nederland and Port Neches and the Cities of Groves, Griffing Park, Pear Ridge, Lakeview, and Port Arthur. The heaviest concentration of population within the urban area is located in the area west of Houston Avenue.

Density of Population

The 1960 net residential density of population in persons per acre is shown on Plate 4. For the purpose of this analysis and for future studies in the Comprehensive Plan, the City of Port Arthur has been divided into 25 statistical districts (identified by numbers), and the area outside the corporate limits into 10 statistical districts (identified by letters). The population and density shown on Plates 3 and 4 are summarized in Table 7. The various densities were computed on the basis of the net residential acreage of each district, excluding large public and semipublic areas, such as schools, parks, cemeteries, and institutional properties, major commercial and industrial areas, and major vacant areas.

Plate 4 shows that the densities generally decrease in proportion to the distance from the central business district. Present net densities range from more than 40 persons per acre in District 11, to less than five persons per acre in District 25. Past development practices have caused extreme overcrowding within the high density districts, particularly Districts 11, 19, and 20. To illustrate this overcrowding, examination of Table 7 and Plate 4 shows that 32.2 percent of the Port Arthur population resides on only 11.9 percent of the developed areas.

Land Use 1960

The general land use pattern in the Port Arthur urban area is shown diagrammatically on Plate 5. Five major categories are depicted including residential, commercial, industrial, public and semipublic, and gas field areas.

The city's shape is typical of a port or river city. The central business district is located near the water's edge with the city developing in a semi-circular area around this core. The principal business district of Port Arthur is in the area bounded generally by Houston Avenue, the Intracoastal Waterway, Shreveport Avenue, and Eighth Street.

The existing land use pattern shows that there are a large number of small commercial establishments scattered throughout the city. This is a direct result of the lack of previous zoning control. Strip-commercial development has occurred along almost every major artery of the city and is a very undesirable condition which creates traffic congestion and parking problems.

Industrial development is generally confined to the major oil and chemical producing plants along the Neches River, the Gulf and Texaco refineries located west of the City of Port Arthur, and the railroad yards along the intracoastal canal. With the exception of the warehouses located near the K.C.S. and Southern Pacific depots, very little industrial development has occurred inside the corporate limits.

Plate 5 also shows that railroads have completely "looped" the City of Groves and the older section of Port Arthur. These railroads act as barriers to residential development and other types of urban land uses.

Public and semipublic uses are scattered throughout the area and include among other uses, schools, parks, churches, and municipal buildings.

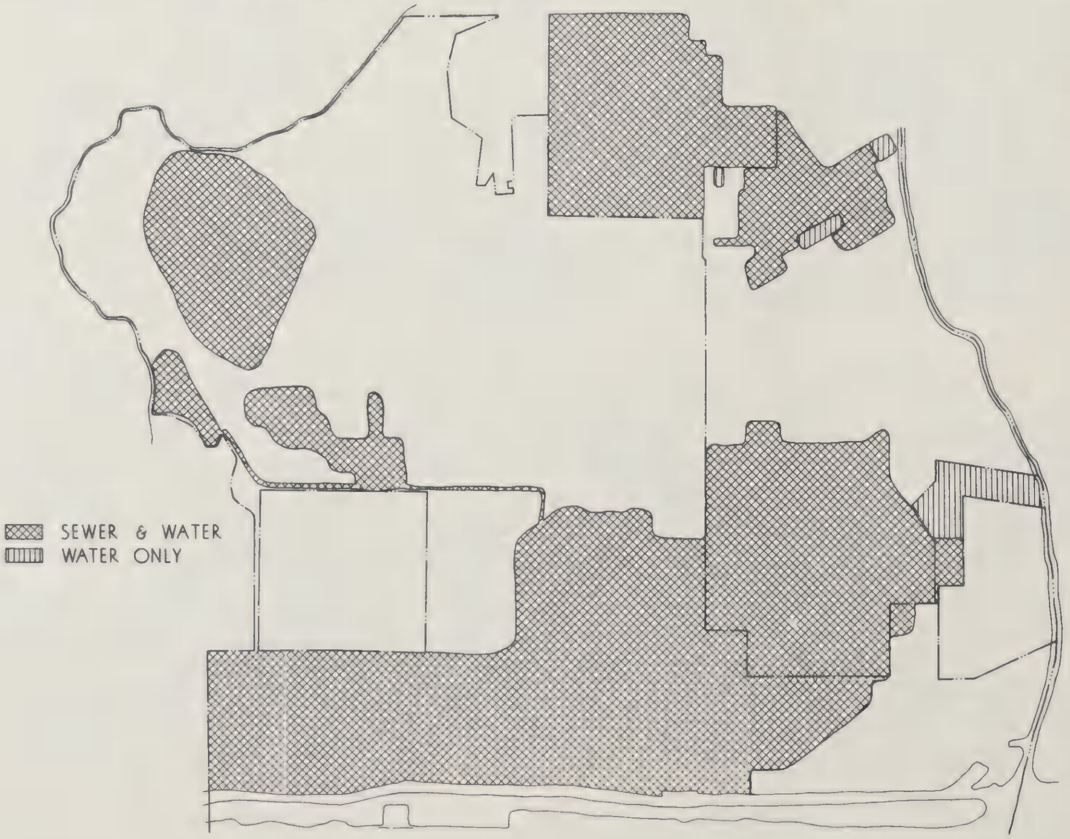
The gas field covers a large section of the land recently annexed to Port Arthur. This area is bounded generally by F.M. 365, F.M. 823, State Highway 73, and the Gulf States' Utilities right-of-way.

Factors Influencing Future Population Distribution

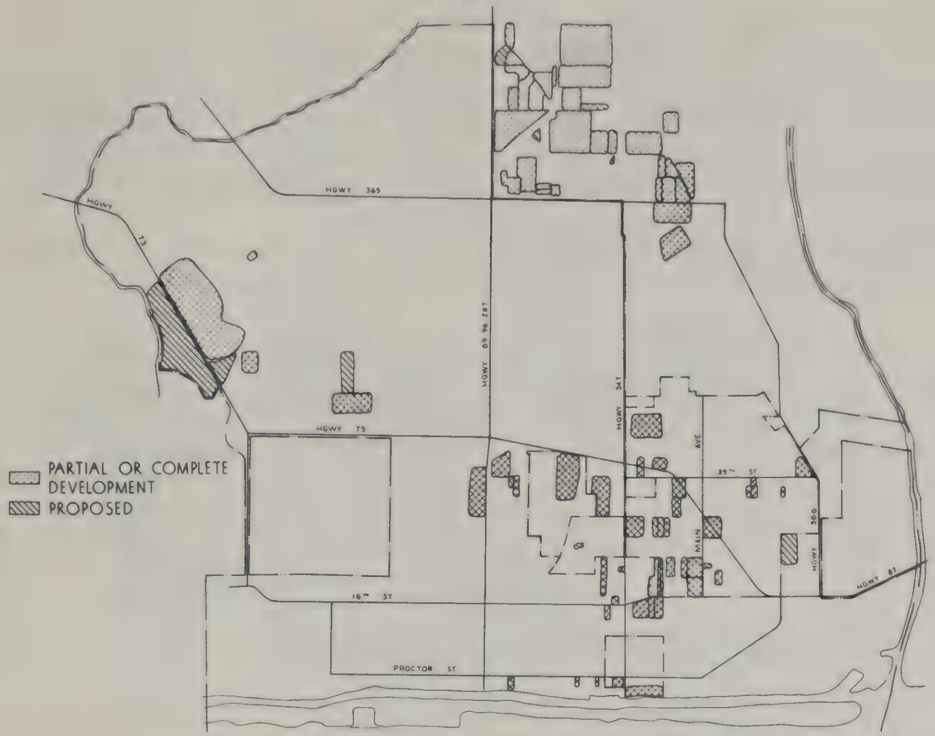
Topography

Much of the area adjoining Port Arthur is low and difficult to drain. This situation has inhibited development in the area adjacent to the Intracoastal Waterway near the Neches River and in the area adjoining State Highway 73 to the northwest of the city. Recent land reclamation made possible by drainage improvements has stimulated the construction of the Lakeside and Palomar Subdivisions in this latter area. Appreciable growth can be expected to take place in the Port Acres area, while the presence of water transportation, highway and railroad facilities make the area adjacent to the Intracoastal Waterway ideally suited for industrial growth.

AREA SERVED BY SEWER & WATER



LOCATION OF NEW SUBDIVISIONS
1950-1960



Area Served by Sewer and Water

Each of the communities in the urban area has kept pace with its growth by providing sewer and water service. In some instances, these services have been extended to encompass anticipated growth areas. The sketch on the preceding page shows the areas which are presently served by sewer and water.

Location of New Subdivisions

Past subdivision development, as shown in the above sketch, has been confined principally to filling in of vacant areas inside the levee of Port Arthur and the smaller communities of Lakeview, Griffing Park and Pear Ridge. The most concentrated subdivision development has been inside the City of Nederland. Subdivisions in Groves and Port Neches have been scattered and are basically extensions of developed property. Residential development west of the city has been confined to two large subdivisions, Palomar and Lakeside Park. The sketch shows those subdivisions either partially or completely developed in the past 10 years and those proposed for development at the present time.

Location of Substandard and Obnoxious Uses

The major substandard housing areas are located north of the central business district and west of the Southern

Pacific freight depot and in the area north of State Highway 73 west of Port Arthur's reservoir.

The industrial uses, such as the refineries which generate fumes and odors, are obnoxious to adjacent residential or commercial uses. Since most of the urban area's industrial development is in this category, residential development in close proximity to these oil and chemical plants should be discouraged.

The Port Arthur gas field occupies a large area north of the older section of the city. Explorations now being carried on in this field will preclude any urbanization within the near future. Eventual development of the area should be predominantly residential in character, but the amount of development and its location will depend upon the continued production of this field.

Future Distribution of Population

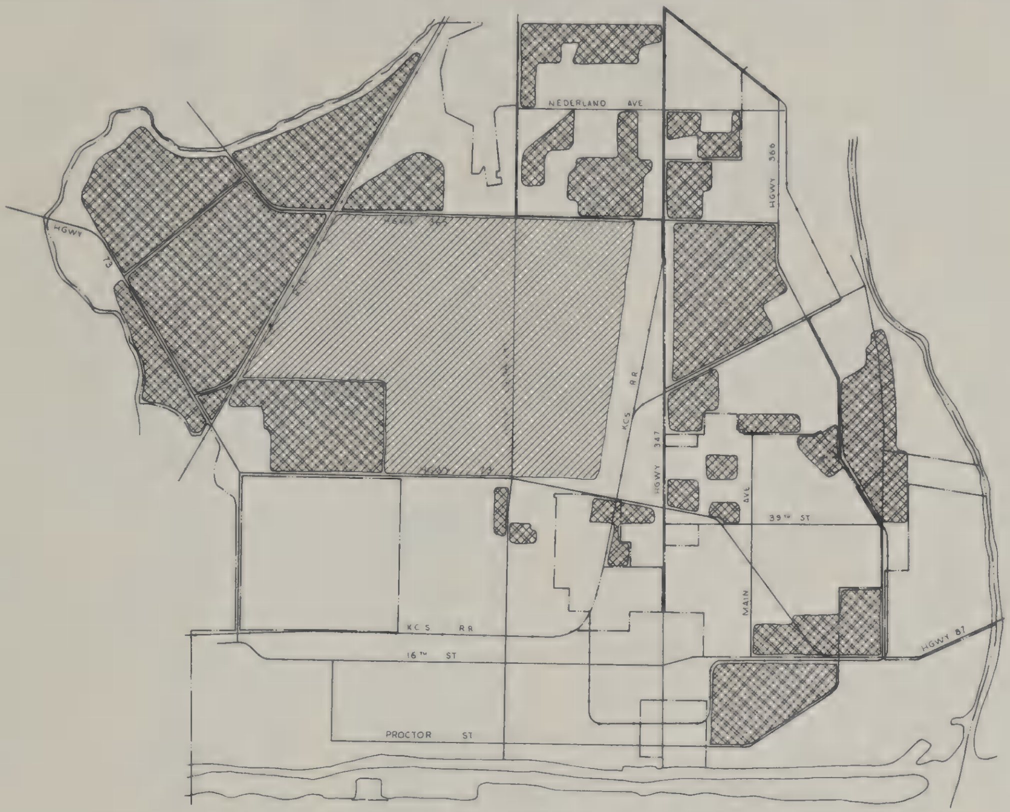
Plate 6 shows the proposed future distribution of population in the Port Arthur urban area. One dot on the map represents 20 persons, or an average of 6.1 families. As previously stated there is not sufficient area within the present corporate limits of Port Arthur to accommodate the anticipated increase of 80,630 persons by 1985 unless the gas field is developed residentially. This is also true of the urban area as a whole.

The recommended distribution of 242,380 persons in the urban area is shown on Plate 6. The remaining 6,120 persons of the anticipated growth by 1985 can be expected to locate outside the area shown on this map but within the urban area.

Although population is shown as occupying the gas field area in an even pattern, this may not take place exactly as shown as the duration of production of gas from this area is unknown, although it has been estimated to be from 10 to 30 years. If and when the gas field is completely exhausted, the area could be developed residentially to accommodate approximately 60,000 persons. In the meantime, part of the area might be made available in a piecemeal manner.

The suggested distribution does not attempt precisely to indicate the future population of any block. Based on all of the foregoing criteria and limitations, the proposed plan suggests a generally balanced pattern within the urban area. The following sketch shows areas which are suitable for residential development. Other vacant tracts not suitable for urbanization should be devoted to some non-residential use.

AREAS SUITABLE FOR RESIDENTIAL DEVELOPMENT



Future Density of Population

Table 7 contains the present and estimated future population and density by statistical district. In comparing the net densities of 1960 and 1985, Table 7 shows that densities in seven districts in Port Arthur will decrease while eight will remain the same. It should be noted that Districts 13, 14, 15, 16, 21, 22, 23, and 24 comprise the major part of the residential area of the older sections of Port Arthur. As mentioned earlier, these districts are almost completely built-up and little if any growth can be expected in the future.

At present, Districts 9, 10, 11, 12, 13, 19, and 20 have densities in excess of 20 persons per acre. Of these, only District 13 will remain constant in both population and density, District 12 will lose population but increase slightly in density, while the others will lose population and show a reduction in density.

Large increases in population are anticipated for Districts 1, 2, 3, 4, A, B, C, and K. These increases range from 5,000 persons in District K to 29,260 persons in District 3, if the gas field can be used for residential purposes. These increases will be accomplished without an appreciable change in net density by developing presently vacant land for residential purposes.

Table 1

LABOR FORCE AND EMPLOYMENT
Port Arthur, Texas

			Population in Labor Force						
1940	Total in Labor Force	Male	Female	Total Population	% of Pop. in Labor Force	Total No. Employed	Male	Female	% of Labor Force Em-ployed
Port Arthur	19,122	14,645	4,477	46,140	41.44	16,917	13,093	3,824	88.46
Jefferson County	59,064	44,681	14,383	145,329	40.64	51,809	39,418	12,391	87.71
Texas	2,454,924	1,912,539	542,385	6,414,824	38.26	2,138,355	1,675,495	462,860	87.10
1950									
Port Arthur	23,695	17,467	6,228	57,530	41.18	22,039	16,196	5,843	93.01
Jefferson County	78,711	57,945	20,766	195,083	40.34	73,716	54,025	19,691	93.65
Texas	2,868,606	2,121,282	747,324	6,414,194	44.72	2,757,829	2,037,298	720,531	96.13

Source: U.S. Census.

Table 2
COMPARISON OF NON-AGRICULTURAL EMPLOYMENT BY MAJOR CATEGORIES
Port Arthur, Texas

	1940		1950		1959*	
	Number	Percent	Number	Percent	Number	Percent
Census Population	46,140		57,530		70,210	
Labor Force	19,122		23,695		46,030	
Unemployed	2,205		1,656		3,900	
Agriculture, Forestry, Fisheries	32		83		21	
Non-Agricultural Employment	16,885		21,956		42,109	
Manufacturing						
Food and Kindred Products	157	2.22	152	1.66	1,479	7.54
Lumber, Timber Products and Furniture Manufacture	70	.99	59	.64	73	.38
Printing, Publishing	105	1.48	130	1.42	150	.76
Chemicals, Allied Products	65	.92	432	4.71	2,258	11.50
Petroleum and Coal Products	6,248	88.07	7,810	85.18	14,065	71.60
Stone, Glass and Clay Products	10	.14	12	.13	68	.35
Metal Products	411	5.79	421	4.59	1,521	7.76
Other Manufacturing	28	.39	153	1.67	20	.11
All Manufacturing Employment	7,094	100.00	9,169	100.00	19,634	100.00
% Total Non-Agricultural Employment	42.01		41.76		46.63	
Non-Manufacturing						
Mining	30	.31	13	.10	14	.06
Construction	731	7.47	1,393	10.89	3,814	16.97
Transportation, Allied Services	1,425	14.55	1,291	10.10	3,049	13.57
Communications, Utilities	307	3.14	514	4.02	607	2.70
Wholesale Trade	205	2.09	334	2.61	747	3.32
Retail Trade	2,742	28.01	3,909	30.57	5,311	23.63
Financial, Insurance, Real Estate	302	3.08	493	3.86	819	3.64
Business, Personal Services	2,477	25.13	2,461	19.25	1,952	8.69
Professional Services	900	9.19	1,352	10.57	1,701	7.57
Government	315	3.22	558	4.36	3,066	13.64
Other Non-Manufacturing	357	3.64	469	3.67	1,395	6.21
All Non-Manufacturing Employment	9,791	100.00	12,787	100.00	22,475	100.00
% Total Non-Agricultural Employment	57.99		58.24		53.37	

Source: U.S. Census and Texas Employment Commission.
*After annexation.

Table 3

RETAIL SALES AND EFFECTIVE BUYING INCOME
1950 and 1958
Jefferson County and Port Arthur, Texas

	Population	Families	Effective Buying Income		Retail Sales	
			Amount	Per Capita	Amount	Per Capita
1950						
Port Arthur	58,300	17,100	$89,549,000	$1,536	$74,946,000	$1,286
Jefferson County	197,100	57,800	$277,517,000	$1,408	$230,934,000	$1,172
1958						
Port Arthur	65,000	19,600	$117,761,000	$1,812	$102,531,000	$1,577
Jefferson County	239,000	69,900	$422,009,000	$1,766	$299,503,000	$1,253

Source: Sales Management Magazine.

Table 4

COMPARATIVE RETAIL AND WHOLESALE TRADE DEVELOPMENT
1939, 1948 and 1954
Port Arthur Texas

	Port Arthur			Jefferson County		
Retail Trade	1939	1948	1954	1939	1948	1954
Establishments	626	740	698	1,906	2,447	2,223
Sales[1]	$20,472	$62,747	$82,551	$54,471	$193,671	$244,845
Payroll[1]	$2,343	$6,277	$8,569	$6,074	$19,644	$26,300
Paid Employees	2,439	3,366	3,726	6,676	10,893	10,999
Wholesale Trade						
Establishments	40	51	50	177	229	287
Sales[1]	$5,055	$20,466	$27,822	$35,401	$119,815	$187,160
Payroll[1]	$296	$877	$1,826	$11,946	$7,189	$11,655
Paid Employees	243	304	587	1,375	2,482	3,138

[1] All dollar figures in thousands.

Source: U.S. Census of Business.

Table 5

PAST GROWTH OF POPULATION
Port Arthur, Texas

	United States		Texas		Jefferson County		Port Arthur	
Year	Population	Percent Increase	Population	Percent Increase	Population	Percent Increase	Population	Percent Increase
1890	62,948,000	25.5	2,235,527	40.4	5,857			
1900	75,994,575	20.7	3,048,710	36.4	14,239	143.0	900	
1910	91,972,266	21.1	3,896,542	27.8	38,182	168.0	7,663	751.4
1920	105,710,620	14.9	4,663,228	19.7	73,120	88.0	22,251	190.4
1930	122,775,046	16.1	5,824,715	24.9	133,391	82.4	50,902	128.8
1940	131,669,275	7.2	6,414,824	10.1	145,329	8.9	46,140	-9.4
1950	150,697,361	14.5	7,711,194	20.2	195,083	34.2	57,530	24.7
1960	179,013,000[1]	18.8	8,748,000[2]	13.4	273,610[3]	38.8	70,210[3]	21.6

Source: U.S. Bureau of Census.
1. December 1, 1959 Census Bureau estimate.
2 July 1, 1955 Census Bureau estimate.
3 Harland Bartholomew and Associates' estimate.

Table 6

ESTIMATES OF FUTURE POPULATION
Port Arthur, Texas

	A	B	C	D	E	F		G		H	J	K		L		M	
						State of Texas to United States		Jefferson County to United States				City of Port Arthur to Jefferson County		City of Port Arthur to United States		City of Port Arthur to State of Texas	
Year	United States (000)	State of Texas (000)	Jefferson County	Port Arthur Urban Area	Port Arthur	Percent	Change	Percent	Change	Urban Area Jefferson County	Port Arthur to Urban Area	Percent	Change	Percent	Change	Percent	Change
1900	75,995	3,048.7	14,240		900	.40		.018				6.3		.001		.02	
1910	91,272	3,896.5	38,180		7,663	.42	.02	.042	.024			20.0	13.7	.008	.007	.19	.17
1920	105,711	4,663.2	73,120		22,251	.44	.02	.069	.027			30.4	10.4	.021	.013	.47	.28
1930	122,775	5,824.7	133,390		50,902	.47	.03	.110	.041			38.1	7.7	.041	.020	.87	.40
1940	131,669	6,414.8	145,330	52,211[5]	46,140	.49	.02	.110	.000			31.7	-6.4	.035	-.006	.71	-.16
1950	150,697	7,711.2	195,080	73,999[5]	57,530	.51	.02	.129	.019			29.4	-2.3	.038	.003	.74	.03
Estimates						aver.	.02	aver.	.022					aver.	.007	aver.	.14
1960	181,200[1]	9,603.6[3]	273,610[4]	115,610[6]	70,210[6] 70,860[9] 81,540[10] 84,510[11]	.53[3]		.151[4]		42.3[7]	60.7[8]	25.9	-3.5	.045[10]		.88[11]	
1970	219,500[1]	12,072.5[3]	379,730[4]	160,630[7]	97,500[8] 98,350[9] 114,140[10] 123,140[11]	.55[3]		.173[4]		42.3[7]	60.7[8]	25.9[9]		.052[10]		1.02[11]	
1980	272,600[1]	15,538.2[3]	523,390[4]	221,400[7]	134,400[8] 135,560[9] 160,830[10] 180,240[11]	.57[3]		.195[4]		42.3[7]	60.7[8]	25.9[9]		.059[10]		1.16[11]	
1985	289,400[2]	16,785.2[3]	587,480[4]	248,500[7]	150,840[8] 152,160[9] 179,430[10] 206,460[11]	.58[3]		.206[4]		42.3[7]	60.7[8]	25.9[9]		.062[10]		1.23[11]	

[1] U.S. Census Estimate, Series P-25, No. 187, Nov. 10, 1958 (Series 1).
[2] Harland Bartholomew and Associates Estimate.
[3] Assumes population of State of Texas will continue to increase as a proportion of U.S. population at the rate of .02 percent per decade.
[4] Assumes population of Jefferson County will continue to increase as a proportion of U.S. population at the rate of .022 percent per decade.
[5] Includes only incorporated communities.
[6] From Land Use Survey.
[7] Assumes population of Port Arthur urban area will continue to represent 42.3 percent of Jefferson County population.
[8] Assumes population of Port Arthur will continue to represent 60.7 percent of urban area population.
[9] Assumes population of Port Arthur will continue to represent 25.9 percent of Jefferson County population.
[10] Assumes population of Port Arthur will continue to increase as a proportion of U.S. population at the rate of .007 percent per decade.
[11] Assumes population of Port Arthur will continue to increase as a proportion of Texas population at the rate of .14 percent per decade.

Table 7

POPULATION AND DENSITY BY STATISTICAL DISTRICT
Port Arthur, Texas

	1960 Gross Density			1960 Net Density			1985 Net Density		
	Total Area			Developed Area			Developed Area		
District	Acres*	Population**	Persons per Acre	Acres*	Population**	Persons per Acre	Acres*	Population**	Persons per Acre
1	3,850	140	0.36	15	140	9.33	1,500	15,000	10.00
2	3,960	4,680	1.18	585	4,120	7.04	3,145	31,460	10.00
3	5,800	1,860	0.32	155	1,700	10.96	4,700	30,960	6.58
4	3,770	680	0.18	85	680	8.00	2,500	11,820	4.73
5	1,210	-	-	-	-	-	-	-	-
6	515	2,280	4.43	230	2,240	9.73	300	3,340	11.12
7	445	3,200	7.19	310	3,140	10.12	340	3,400	10.00
8	405	790	1.95	80	690	8.62	200	2,000	10.00
9	650	2,160	3.32	85	2,160	25.40	185	1,860	10.06
10	260	5,920	22.77	195	5,900	30.30	195	4,300	22.05
11	140	3,500	25.00	80	3,380	42.25	100	1,700	17.00
12	180	2,520	14.00	105	2,420	23.04	85	2,020	23.75
13	250	4,480	17.92	205	4,440	21.65	205	4,440	21.65
14	235	2,840	12.08	175	2,840	16.22	175	2,840	16.22
15	265	3,460	13.06	215	3,330	15.48	215	3,320	15.44
16	335	2,880	8.60	200	2,780	13.90	200	2,780	13.90
17	615	4,060	6.60	435	3,860	8.87	440	4,080	9.28
18	325	2,200	6.77	160	2,200	13.75	180	2,700	15.00
19	505	2,560	5.07	85	2,540	29.90	85	2,040	24.00
20	195	2,180	11.18	50	1,800	36.00	40	1,400	35.00
21	270	3,780	14.00	185	3,640	19.67	185	3,640	19.67
22	340	4,920	14.47	270	4,800	17.77	270	4,800	17.77
23	390	4,620	11.85	345	4,520	13.10	345	4,520	13.10
24	390	4,480	11.49	340	4,440	13.05	340	4,440	13.05
25	4,070	20	0.05	5	20	4.00	200	2,000	10.00
Subtotal	29,370	70,200		4,595	67,780		16,130	150,840	

45.1 square miles
* Rounded off to nearest five acres.
**Rounded off to nearest 20 persons.

Nederland A	2,645	10,880	4.11	1,155	10,620	9.19	2,480	24,800	10.00
Port Neches B	2,320	8,220	3.54	810	8,180	10.09	1,610	16,020	9.94
" " C	2,655	660	0.25	100	580	5.80	1,245	11,280	9.05
Pear Ridge D	525	3,380	6.44	365	3,320	9.10	490	4,540	9.27
Griffing Park E	325	2,540	7.82	305	2,540	8.33	305	2,540	8.33
Lakeview F	330	3,840	11.63	240	3,740	15.58	260	4,120	15.85
Groves G	700	2,700	3.86	310	2,640	8.52	550	5,380	9.78
" H	745	3,440	4.62	365	3,240	8.88	650	6,300	9.70
" J	755	4,320	5.73	325	4,180	12.87	620	6,420	10.35
" K	1,010	5,420	5.37	615	5,140	8.35	950	10,140	10.68
Subtotal	12,010	45,400		4,590	44,160		9,160	91,540	
TOTAL	41,380	115,600		9,185	111,940		25,290	242,380	

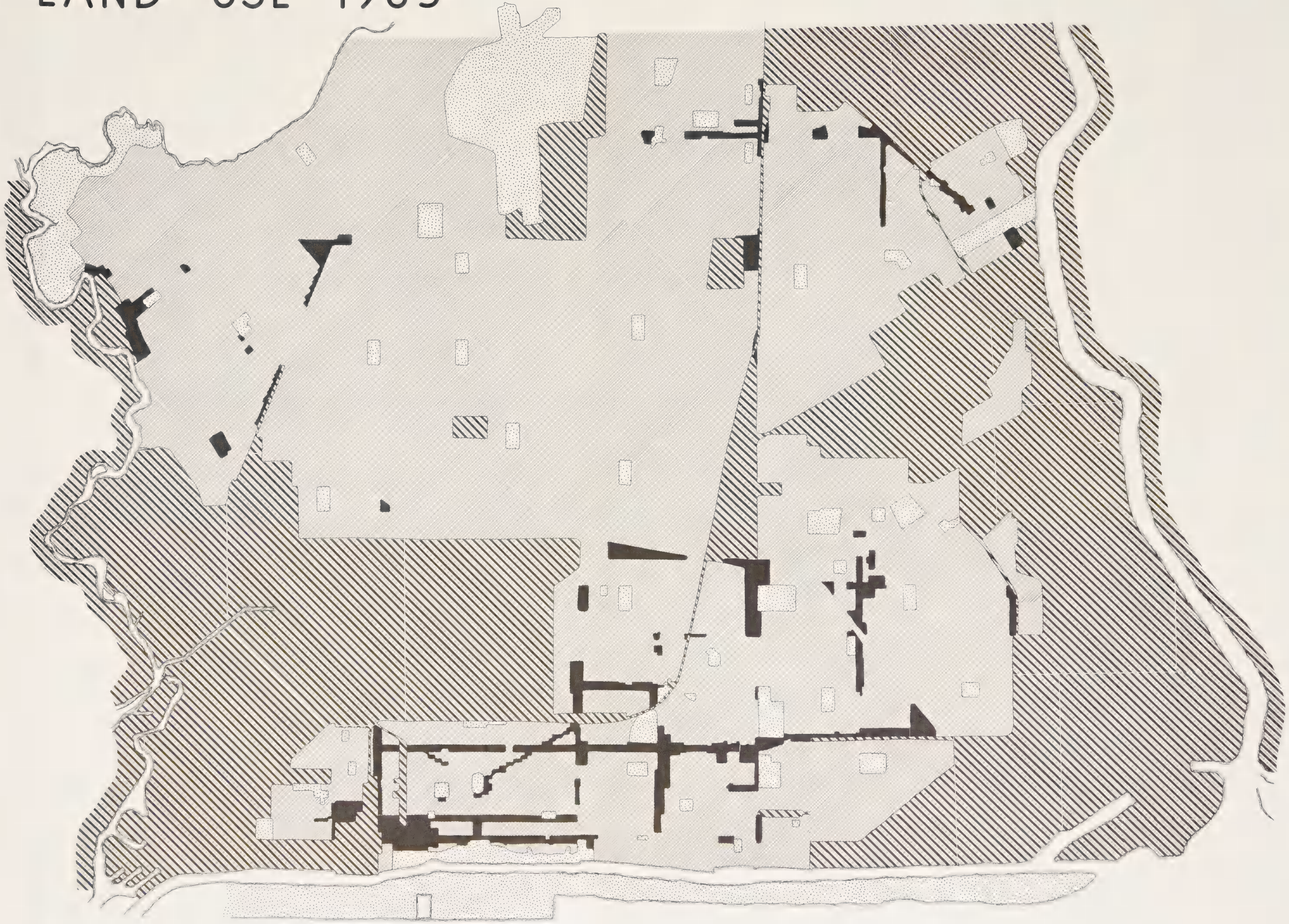
* Acres rounded off to nearest five.

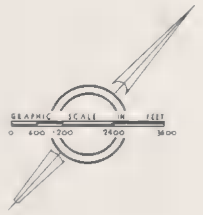
THE COMPREHENSIVE PLAN

DIAGRAMMATIC LAND USE 1985

LEGEND

- ▨ RESIDENTIAL
- ■ COMMERCIAL
- ▧ INDUSTRIAL AND RAILROAD
- ░ PUBLIC AND SEMI-PUBLIC





PORT ARTHUR, TEXAS
AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

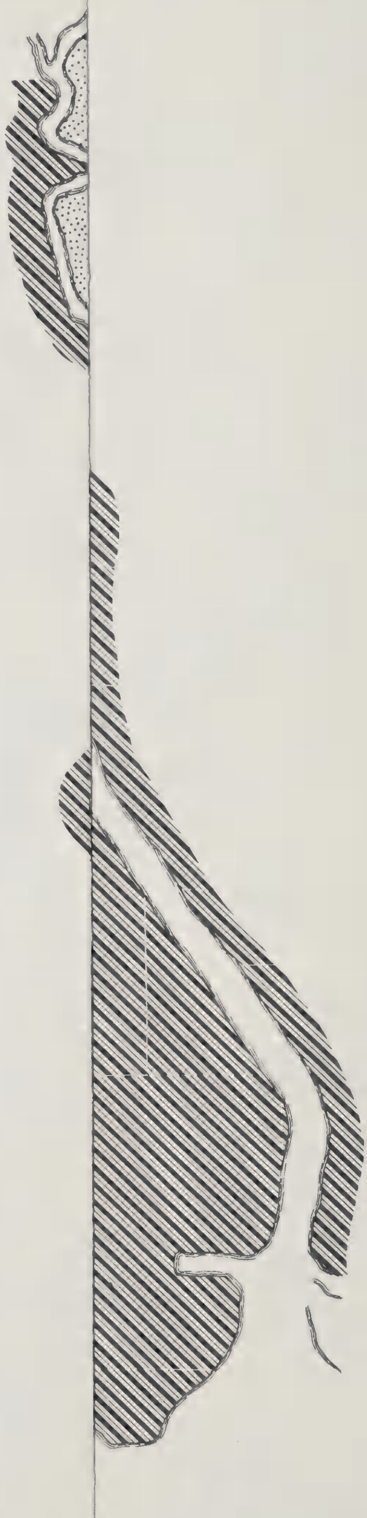
HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

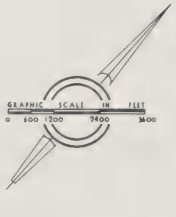
PLATE 7

DIAGRAMMATIC

LEGEND

- ▨ RESIDENTIAL
- ■ COMMERCIAL
- ▧ INDUSTRIAL AND RAILROAD
- ⬚ PUBLIC AND SEMI-PUBLIC





PORT ARTHUR, TEXAS
AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 7

LAND USE AND ZONING*

The arrangement of the many different buildings and land uses in Port Arthur, their relationships to each other, and the manner in which the patterns of land uses are adapted to the site of the city, very largely determine the character, efficiency, and quality of the city. Zoning control of the use of land is the most important part of city planning in any community. It is essential to avoid the disassociated and chaotic conditions of residential, commercial, industrial, and public and semipublic uses, that is the inevitable result when there is no community control.

There are four principal objectives of zoning: (1) to direct the growth of the community in accordance with the Comprehensive Plan, (2) to provide adequate light and air, to prevent overcrowding of the land, and to avoid undue concentration of population, (3) to encourage the most appropriate use of land, and (4) to conserve and protect property values.

Legal Basis for Zoning

The Texas Legislature in 1927 passed the Municipal Zoning Enabling Act which permits all cities to enact and enforce comprehensive zoning regulations. The Act specifies the basis for the regulations, determines the extent of the regulations, and provides the procedures for enactment. The Act also outlines the membership and powers of the Board of Adjustment.

Scope of Zoning

To effectively protect existing development and to guide future growth, zoning should control: (1) the use of land and buildings, (2) the height and bulk of buildings, (3) the open space around buildings, and (4) the density of population.

Zoning is accomplished by dividing the city into "districts". One district may differ from another in the types of uses permitted, or the same uses may be permitted in two or more districts with different yard depths and lot areas required. Zoning regulations are minimum regulations. In practically all communities the majority of development is built at a higher standard than that required by the regulations.

---

*Preliminary Report, "Land Use and Zoning", dated June, 1960, Harland Bartholomew and Associates.

Zoning has a great influence upon urban development, an influence that can be either good or bad depending upon the quality of the ordinance. The area of the zoning districts must be closely related to the amount of land needed for the uses permitted in the district. When much more land is zoned than will ever be needed for multiple dwellings, commerce, or industry, a widespread false presumption is created regarding the value of this property, a presumption that can never be realized. This results in depreciation and blight of property. The zoning ordinance and district map, even though carefully prepared, can become a public liability if improperly administrered. As a means of carrying out the comprehensive land use plan, the zoning ordinance when adopted should remain unchanged except when it is clearly shown that there was an error in the original thinking, or when the circumstances or environment relative to a specific property or properties have materially changed since the time of its adoption.

Land Use

The process of gathering, studying and analyzing the land use data necessary in the preparation of the zoning ordinance and plans for the physical growth of the city is referred to as a land use survey.

A land use inventory and its analysis are essential tools in preparing a desirable future land use pattern and to implement an intelligent zoning plan to carry out this future land pattern. Planning for streets, parking, housing, parks, schools, utilities, public buildings, and other physical elements of a city are dependent upon a knowledge of the character, extent, and area of existing and future land uses.

Land Use Areas

The actual acreage used for the various land uses in the City of Port Arthur was determined from the information gathered during the field inspection. Table 8 shows the relationships of these land use areas to the total city area, and to the total developed area, as well as the acreage used per 100 persons.

Column 1 of Table 8 shows the area in acres of each of the various categories of land use. The area devoted to streets is the largest category of all the land use classifications. Residential uses make up the second largest category with single-family residences predominating. The area devoted to commercial, industrial and railroad uses totals 2,420 acres. However, 593.15 acres of industrial land use is in tank farms and 726.03 acres are in water reservoir areas.

The developed area of the city amounts to 10,202 acres of the total area of 50,741 acres. It should be noted that 21,225 acres of the total city area is in water area in Sabine Lake, the Neches River, and the Intracoastal Waterway. Land area amounts to 29,515 acres.

Column 2 of Table 8 shows the percent of each land use category in relation to the total city area. The developed area accounts for approximately 20 percent of the city area with 38 percent vacant or agricultural land and 42 percent in water area.

One of the most important phases of a land use analysis is a study of each land use category and its relationship to the developed area in the city. In general, these areas are in proportion to the needs of the people living in a particular city and the ability of those people to support certain facilities and services. Column 3, Table 8, shows this relationship.

Streets and alleys occupy 41 percent of developed area, the largest of the several categories. Residential uses comprise nearly 38 percent of the developed area. Commercial, industrial and railroad property total 12 percent, with public and semipublic, parks and playgrounds making up the remaining nine percent.

There also exists a definite relationship between the number of persons in a community and the amount of land used for urban purposes. This relationship is generally expressed by the number of acres of land used by each urban purpose for every 100 persons residing in the city. Column 4 of Table 8 shows this relationship for all urban land uses within Port Arthur.

The land use acreages form the basis for determining the future needs of a community, for by knowing the anticipated future population and changes, which can be expected to take place in land use categories in the future, the future needs in acres per 100 persons can be estimated. To show how Port Arthur compares with other Texas cities, a review of similar studies conducted in four other Texas cities revealed the following.

Population of Comparison Cities

City	Population	Year of Survey
Port Arthur	70,200	1960
Tyler	53,040	1959
Waco	120,500	1956
Beaumont	119,980	1958
Corpus Christi	119,820	1951

Residential Land

The following table has been prepared to show the relationship of residential land uses in Port Arthur and the four comparison cities. The comparison is based on area in acres, percent of total developed area, and acres per 100 persons.

In the calculation of the percentages of total developed area for Port Arthur, the total developed area was reduced from 10,202.84 acres to 7,684.92 acres. The difference of 2,517.92 acres is the total of the specialized uses mentioned previously.

Comparison of Residential Land Uses

Land Use Area in Acres

	Port Arthur	Tyler	Waco	Beaumont	Corpus Christi
Single-family	2,757.79	3,196.00	5,808.00	5,727.36	4,156.80
Two-family	73.74	134.62	291.00	199.12	192.60
Multiple-family	62.39	33.42	171.00	191.75	252.60
Total	2,893.92	3,364.04	6,270.00	6,118.23	4,602.00

Percent of Total Developed Area

	Port Arthur	Tyler	Waco	Beaumont	Corpus Christi
Single-family	35.88	44.53	32.59	39.29	39.09
Two-family	0.96	1.88	1.63	1.37	1.98
Multiple-family	0.81	0.46	0.96	1.32	2.70
Total	37.88	46.87	35.18	41.98	43.77

Acres per 100 Persons

	Port Arthur	Tyler	Waco	Beaumont	Corpus Christi
Single-family	3.92	6.03	4.72	4.77	3.47
Two-family	0.11	0.25	0.23	0.17	0.16
Multiple-family	0.08	0.06	0.14	0.16	0.21
Total	4.11	6.34	5.09	5.10	3.84

Commercial Land

An analysis of the commercial land uses in the five cities follows:

	Port Arthur	Tyler	Waco	Beaumont	Corpus Christi
Area in Acres	312.21	309.02	557.00	527.81	537.00
Percent of Developed Area	4.06	4.31	3.13	3.62	4.98
Acres per 100 Persons	0.44	0.58	0.45	0.44	0.45

Industrial Land

The amount of land used by industry in a city will vary according to the community's size and the nature of its economy. In the previous chapter on "Background of the Plan", it was pointed out that 83.1 percent of all persons in basic employment gain their livelihood in the petroleum and coal products and the chemicals and allied products industries. To compare the industrial development with other Texas cities, the following table was prepared. (Light and heavy industry are combined.)

	Port Arthur	Tyler	Waco	Beaumont	Corpus Christi
Area in Acres	432.00(1)	350.24	1,033.00	932.24	1,695.30
Percent of Developed Area	5.62	4.88	5.80	6.39	7.52
Acres per 100 Persons	0.61	0.66	0.84	0.78	1.42

(1) Exclusive of tank farms and water reservoir areas.

Railroad Property

The following table was prepared to show the comparison of railroad property in the five Texas cities:

	Port Arthur	Tyler	Waco	Beaumont	Corpus Christi
Area in Acres	213.97	280.76	772.00	708.58	274.70
Percent of Developed Area	2.78	3.92	4.33	4.86	1.62
Acres per 100 Persons	0.30	0.53	0.63	0.59	0.23

Public and Semipublic Land

Institutional land uses, such as schools, churches, fraternal organizations, public buildings, cemeteries, hospitals and similar uses constitute a major asset to a community and vary from city to city as shown in the following table:

	Port Arthur	Tyler	Waco	Beaumont	Corpus Christi
Area in Acres	427.52	593.53	3,881.00	1,172.65	1,251.20
Percent of Developed Area	5.56	8.28	21.77	8.04	11.39
Acres per 100 Persons	0.60	1.12	3.16	0.98	1.04

Park and Recreation Lands

Comparison of the areas used for parks and playgrounds is shown in the following table:

	Port Arthur	Tyler	Waco	Beaumont	Corpus Christi
Area in Acres	245.90	130.78	494.00	684.43	414.20
Percent of Developed Area	3.20	1.83	2.77	4.70	2.14
Acres per 100 Persons	0.35	0.25	0.40	0.57	0.35

Streets

Public streets and alleys are major uses of land in any community as shown in the following comparison table:

	Port Arthur	Tyler	Waco	Beaumont	Corpus Christi
Area in Acres	3,159.40	2,147.49	4,815.00	4,432.86	3,504.40
Percent of Developed Area	41.11	29.91	27.03	30.41	28.58
Acres per 100 Persons	4.51	4.05	3.91	3.69	2.92

Comparison of Total Developed Areas

	Port Arthur	Tyler	Waco	Beaumont	Corpus Christi
Total Dev. Area	10,202.84	7,175.86	17,821.00	14,576.80	12,278.80
Acres/100 Persons	10.82	13.53	14.49	12.15	10.25

In a comparison of the total developed area per 100 persons with the other four cities, Port Arthur ranks fourth. The average for the five cities amounts to 12.27 acres of developed land per 100 persons. Undoubtedly, the exclusion of tank farms, reservoirs and airports has reduced Port Arthur's percentage as with these uses included Port Arthur's developed area would have amounted to 14.29 acres per 100 persons. From past studies and future needs it can be expected that the total developed area per 100 persons will increase in the future.

Major Land Use Problems

1. The scattered form of development which has taken place in the Port Acres area should be discouraged in the future. Large areas of vacant land between subdivisions should be developed to achieve a more unified urban pattern and to effect a more economical use of the public and semipublic facilities and services already extended to this area.

2. Certain land uses, such as home beauty shops, home barber shops, home antique dealers, and garage apartments that have been permitted in all sections except "A" Districts are not compatible with the development of stable single-family residential neighborhoods. This practice has led to an intermixture of uses many of which will be nonconforming under the new ordinance.

Future Land Use Requirements

From the ratios shown in Table 8 and the tables relating the amount of developed land used per 100 persons, a reasonable determination can be made as to the future ratio of land use and population and, in turn, the amount of land that will be needed for urban purposes in the future. The results of these estimates are shown in Table 9. During the next 25 years the total amount of land used per 100 persons of population will increase from 10.92 to 17.11 acres. Because this analysis of land use is directly related to the revision of the zoning ordinance, it is obvious that the only method which will bring about the realization of proper ratios of land use to population is the stringent control of new growth through the zoning ordinance.

Based upon the foregoing assumptions in line with current trends, as well as estimates tabulated in Table 9, a total of 29,515.81 acres of land will be required for urban land uses to accommodate the estimated 1985 population. After an increase of 19,312.97 acres over the present 10,202.84 acres of developed land, there will be 3,693.11 acres of vacant land remaining within the corporate limits when the estimated population is reached.

Future Land Use Plan

A diagrammatic land use plan for the Port Arthur urban area is presented on Plate 7. "Diagrammatic" implies that the plan is general in nature and that the size and location of the various land uses shown are schematic and should not be construed as being exact and final.

New developments should be planned in a manner that would result in the creation of a number of neighborhood units, each with a school age population sufficient to support one public elementary school. Major streets, public parks and recreation areas, commercial centers and other community facilities would be located as to contribute to this type of neighborhood development pattern.

A comparison of Plates 5 and 7 shows where future expansion will take place. Increased population over the future years means that more land will have to be allocated to public and semipublic uses. In some cases, existing public facilities can be expanded to allow for the expected increase in use, but in the outlying areas it will be necessary to reserve undeveloped land for these uses. Schools and parks are only two of the many facilities that will be built. By good site planning to achieve multiple use of all facilities, new elementary schools and public playground areas may be combined into one area.

Lot Area Per Family

A further analysis of the data collected on existing land use in Port Arthur reveals important information regarding the density of population in the residential sections of the city. The lot area per family for every residential lot has been derived and summarized for each statistical district. The general pattern of lot areas in Port Arthur is similar to the majority of cities. In the older, close-in sections of the city, lot areas are small, gradually increasing in size toward the edges of the city. In the older areas many lots have been cut up for either garage apartments, high density residential developments, or commercial uses. In most cases two-family and multiple-family dwellings have been built on lots intended for single-family residences. These practices reduce the lot area per family.

The Present Zoning Ordinance

The present zoning ordinance was adopted in November, 1941. Although many minor amendments have been made to the text and the district map, the ordinance has remained substantially the same. The ordinance divides the city into 12 districts, of which six are residential, two are commercial, three are industrial and one is a recreational district. Use, height, and area regulations are applied to each district.

The following is a brief discussion of some of the major deficiencies of the present ordinance when analyzed and compared with the advances in zoning techniques that have been made since 1941.

1. The list of definitions should be expanded to include a number of terms that require clarification.

2. The height and area regulations appear separately from the use regulations.

3. There are no off-street parking regulations.

4. Garage apartments are permitted in all districts except "A" and "K".

5. The only difference between "F" and "G" Commercial Districts is that "F" requires 100 feet of floor area per family more in apartment houses which exceed one story in height. The "G" District is limited to the area west of Houston Avenue.

6. The ordinance does not provide the flexibility necessary to meet the problems of a rapidly growing community in that no provisions are contained relating to planned commercial or industrial districts.

7. Front yards are not required in certain districts.

8. Schools are not permitted in the "A" District.

9. Dwellings are permitted in all industrial districts.

The Proposed Zoning Ordinance

The proposed zoning ordinance which was presented in June, 1960, has been reviewed by the Planning and Zoning Commission. Public hearings were held by the Planning and Zoning Commission in May, 1961. Numerous changes have been made as a result of those public hearings, and the final report will be submitted shortly to the City Commission for public hearings and adoption.

The provisions of the proposed ordinance differ substantially from those of the existing ordinance. The regulations are adjusted to existing conditions and are consistent with good planning principles. In addition to guiding the over-all growth of Port Arthur toward achieving a logical land use pattern and protecting residential values, the new ordinance will be of inestimable benefit in setting aside and guarding the availability of sites for the industrial expansion upon which the future growth of Port Arthur is so dependent.

New features of the proposed zoning ordinance include:

1. R-1 One-family Residential District. A new district which offers maximum protection to the more recently developed sections of the city and to those areas that are still vacant but adaptable for residential use.

2. Commercial Districts. Four commercial districts are proposed. Three are shown on the district maps and one, designed for future planned shopping centers, will be placed on the map after approval by the Planning and Zoning Commission and the City Commission.

3. Industrial Districts. Three industrial districts covering light and heavy industries, as well as planned limited industrial developments are proposed.

4. Height and Area. Requirements for all districts are summarized on one table.

5. Off-street Parking and Loading. Requirements are provided for every use and are contained in a separate section of the ordinance.

6. Special Uses. Uses which may or may not disturb adjacent property values have been included in a separate section of the ordinance and may be permitted after public hearings by the Planning and Zoning Commission and City Commission.

Table 8

AREAS OCCUPIED BY EXISTING LAND USE
Port Arthur, Texas

Land Use Category	Area in Acres	Percent of Total City Area	Percent of Total Developed Area	Acres Per 100 Persons
Single-family Residential	2,757.79	5.43	35.88	3.92
Two-family Residential	73.74	0.15	0.96	0.11
Multiple-family Residential	62.39	0.12	0.81	0.08
All Residences	2,893.92	5.70	37.66	4.11
Public and Semipublic	1,482.89	2.92	5.56[1]	0.60[1]
Parks and Playgrounds	245.90	0.48	3.20	0.35
Subtotal	1,728.79	3.40	8.76	0.95
Commerce	455.58	0.90	4.06[2]	0.44[2]
Light Industry	790.95	1.55	0.84[3]	0.09[3]
Heavy Industry	960.23	1.89	4.78[4]	0.52[4]
Railroad	213.97	0.42	2.78	0.30
Subtotal	2,420.71	4.77	12.47	1.35
Streets	3,159.40	6.23	41.11	4.51
Total Developed Area	10,202.84	20.10	(7684.92) 100.00	10.92
Vacant and Agricultural	19,312.97	38.07		
Water Area	21,225.11	41.83		
Total Area	50,740.92	100.00		

Source: Land Use Survey, Harland Bartholomew and Associates, 1959.

1/ Excludes Jefferson County Airport, 1055.37 acres.

2/ Excludes private airport area of 143.37 acres.

3/ Excludes water reservoir areas of 726.03 acres.

4/ Excludes tank farms of 593.15 acres.

Table 9

PRESENT AND PROBABLE FUTURE LAND USE NEEDS
Port Arthur, Texas

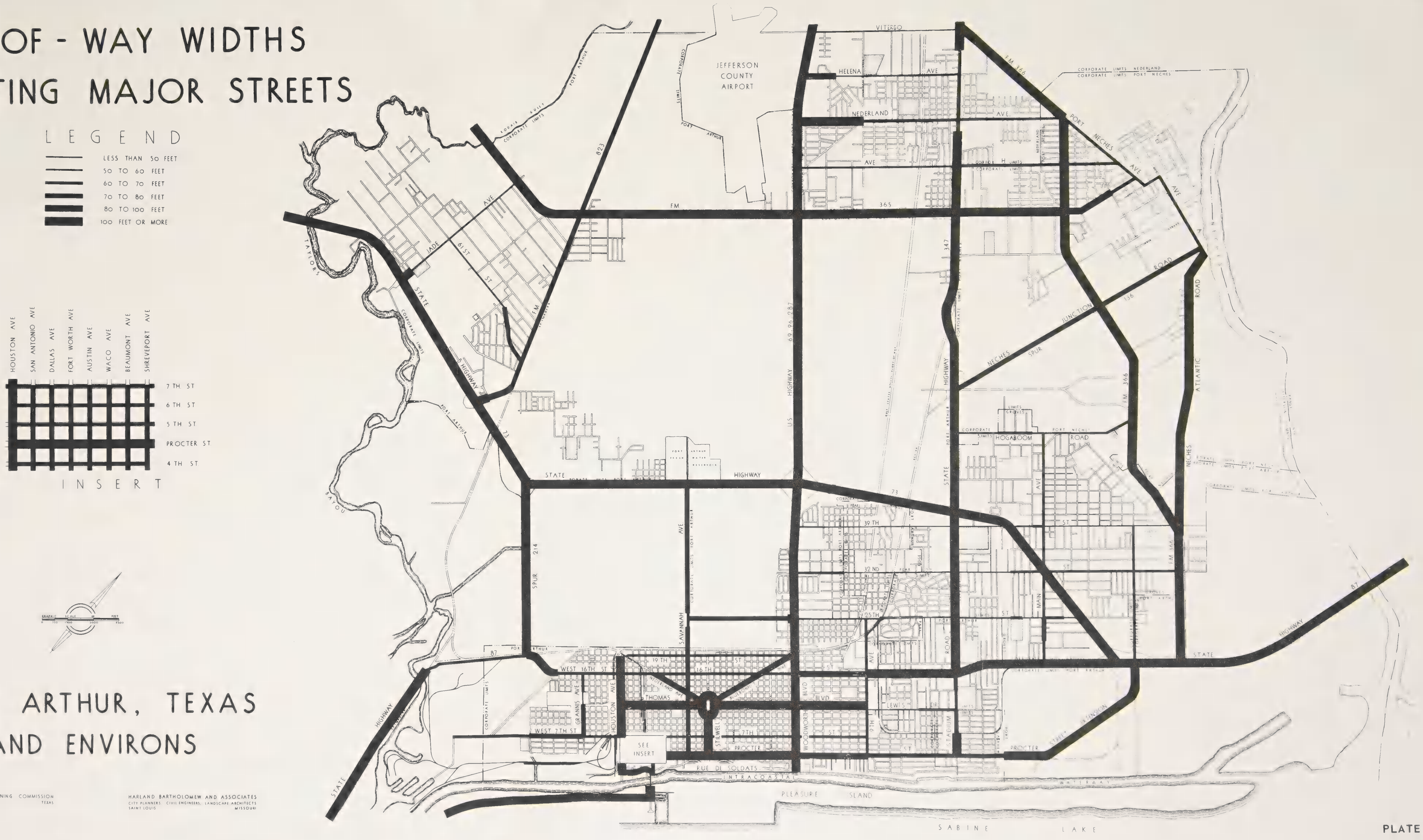
Land Use Category	Present Areas in Acres	Acres of Land Used per 100 Persons	Estimated Acres of Land Needed per 100 Persons--1985	Probable Acres Required	Acres of Vacant Land to be Acquired
Single-family Residential	2,757.79	3.92	6.30	9,502.92	6,745.13
Two-family Residential	73.74	0.11	0.25	377.10	303.36
Multiple-family Residential	62.39	0.08	0.25	377.10	314.71
Public and Semipublic	427.52	0.60[1]	1.00	1,508.40	1,080.88
Parks and Playgrounds	245.90	0.35	1.00	1,508.40	1,262.50
Commerce	312.21	0.44[2]	0.70	1,055.88	743.67
Light Industry	64.92	0.09[3]	0.30	452.52	387.60
Heavy Industry	367.08	0.52[4]	1.20	1,810.08	1,443.00
Railroads	213.97	0.30	0.25	377.10	163.13
Streets	3,159.40	4.51	4.20	6,335.28	3,175.88
Subtotal	7,684.92				15,619.86
Tank Farms, Reservoirs, Airports	2,517.92				
Total Developed	10,202.84	10.92	17.11	25,822.70	
Vacant Land	19,312.97			3,693.11	
Water Area	21,225.11			21,225.11	
Total City Area	50,740.92 (79.28 square miles)			50,740.92	

Present population--70,200
Estimated 1985 population within present corporate limits--150,840

---

[1] Excludes Jefferson County Airport.
[2] Excludes private airport.
[3] Excludes water reservoir areas.
[4] Excludes tank farms.

RIGHT - OF - WAY WIDTHS OF EXISTING MAJOR STREETS



PORT ARTHUR, TEXAS
AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 8

24 HOUR TRAFFIC FLOW – 1960

TRAFFIC SCALE

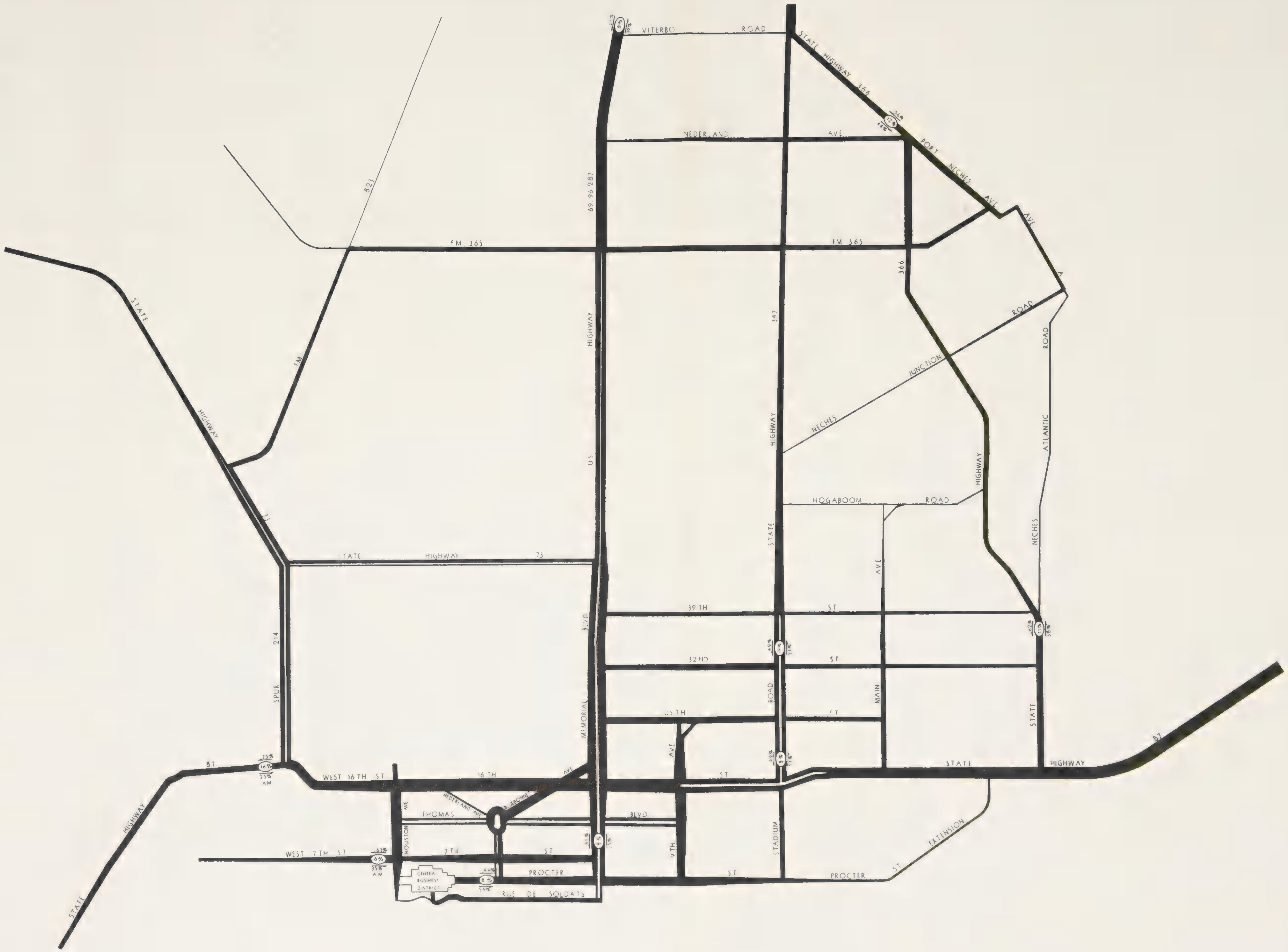
5,000 VEHICLES
10,000 VEHICLES
15,000 VEHICLES
20,000 VEHICLES

VOLUME OF VEHICLES
AVERAGE DAILY TRAFFIC

SOURCE HARLAND BARTHOLOMEW & ASSOC
TRAFFIC COUNTS TAKEN
JUNE 1 - AUGUST 12, 1960

8% PEAK HOUR TRAFFIC AS PERCENTAGE OF 24 HOUR FLOW

75% DIRECTIONAL PERCENTAGE OF PEAK HOUR FLOW



PORT ARTHUR, TEXAS AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS CIVIL ENGINEERS LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 9

FACTORS INFLUENCING MAJOR STREET AND HIGHWAY LOCATION

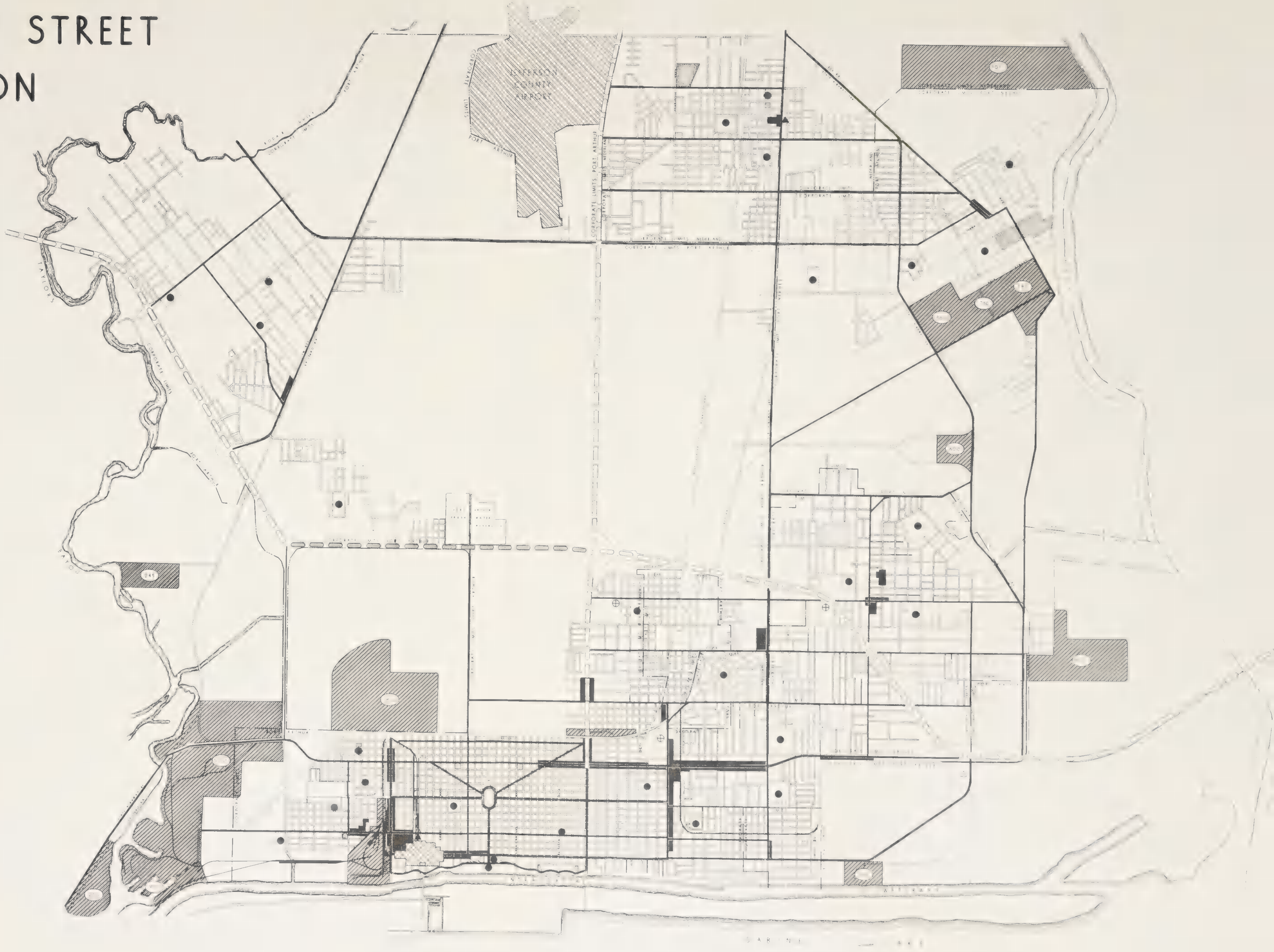
LEGEND

MAJOR TRAFFIC GENERATORS

- ▨ MAJOR PUBLIC AND SEMI-PUBLIC AREAS
- ▩ CENTRAL BUSINESS DISTRICT
- ■ MAJOR COMMERCIAL AREAS
- ▨ MAJOR INDUSTRIAL EMPLOYMENT CENTERS
- ▧ JEFFERSON COUNTY AIRPORT
- ▲ RAILROAD FREIGHT TERMINALS
- △ TRUCK TERMINALS
- ● SCHOOLS
- ⊕ HOSPITALS

OTHER FACTORS

- ▬▬ EXISTING LIMITED ACCESS HIGHWAY
- ▭▭ PROPOSED LIMITED ACCESS HIGHWAY
- — EXISTING MAJOR STREET
- (321) NUMBER OF EMPLOYEES (TEXAS EMPLOYMENT COMMISSION)



PORT ARTHUR, TEXAS AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 10

FACTORS INFLUENCING MAJ
AND HIGHWAY LOCA

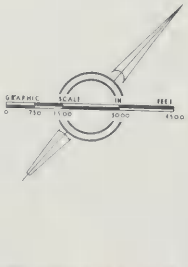
LEGEND

MAJOR TRAFFIC GENERATORS

▭	MAJOR PUBLIC AND SEMI-PUBLIC AREAS
▦	CENTRAL BUSINESS DISTRICT
■	MAJOR COMMERCIAL AREAS
▨	MAJOR INDUSTRIAL EMPLOYMENT CENTERS
▧	JEFFERSON COUNTY AIRPORT
▲	RAILROAD FREIGHT TERMINALS
△	TRUCK TERMINALS
●	SCHOOLS
⊕	HOSPITALS

OTHER FACTORS

▬▬	EXISTING LIMITED ACCESS HIGHWAY
▭▭	PROPOSED LIMITED ACCESS HIGHWAY
—	EXISTING MAJOR STREET
(321)	NUMBER OF EMPLOYEES (TEXAS EMPLOYMENT COMMISSION)



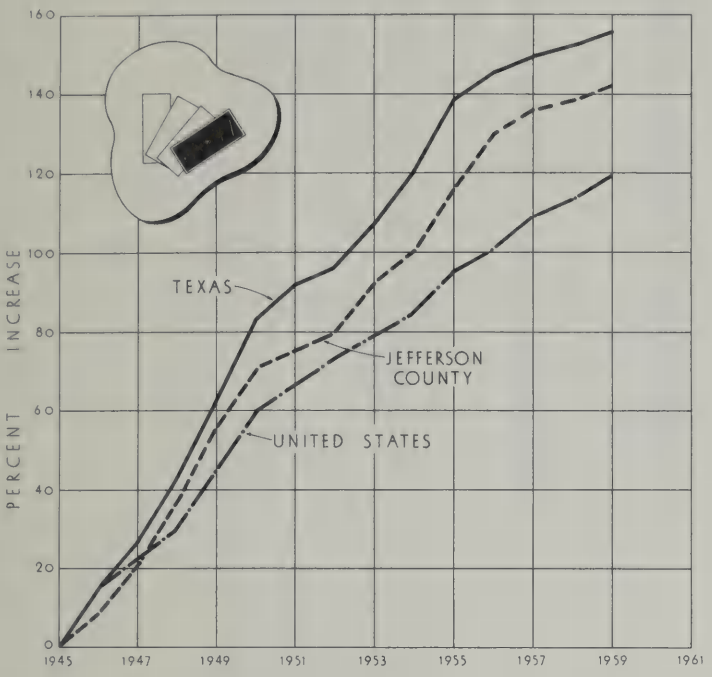
PORT ARTHUR, TEX
AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

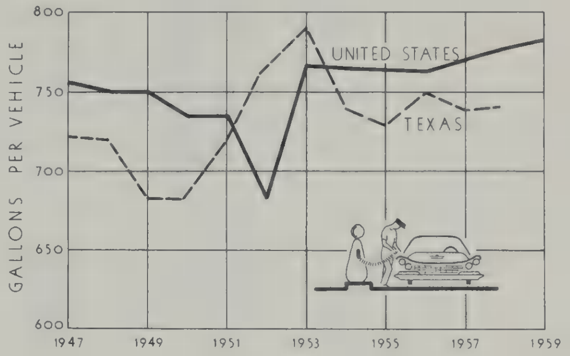
HARLAND BARTHOLOMEW AND
CITY PLANNERS, CIVIL ENGINEERS, LANDSC
SAINT LOUIS

PLATE 10

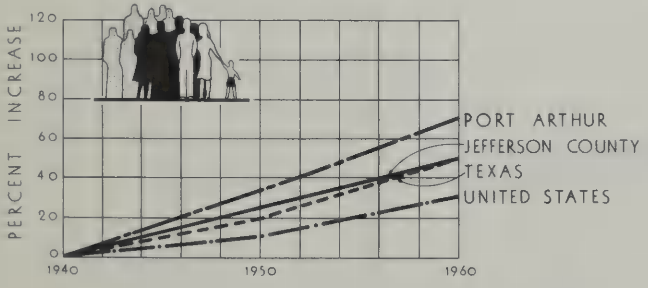
TRAFFIC GENERATION ELEMENTS AND TRAFFIC FLOW TRENDS



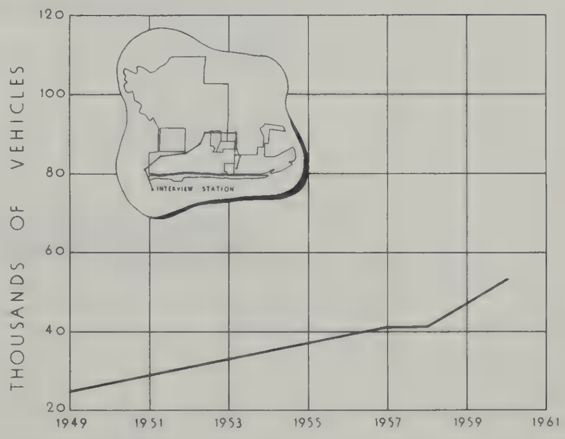
VEHICULAR REGISTRATION



GASOLINE CONSUMPTION



POPULATION GROWTH



24 HOUR TRAFFIC VOLUME

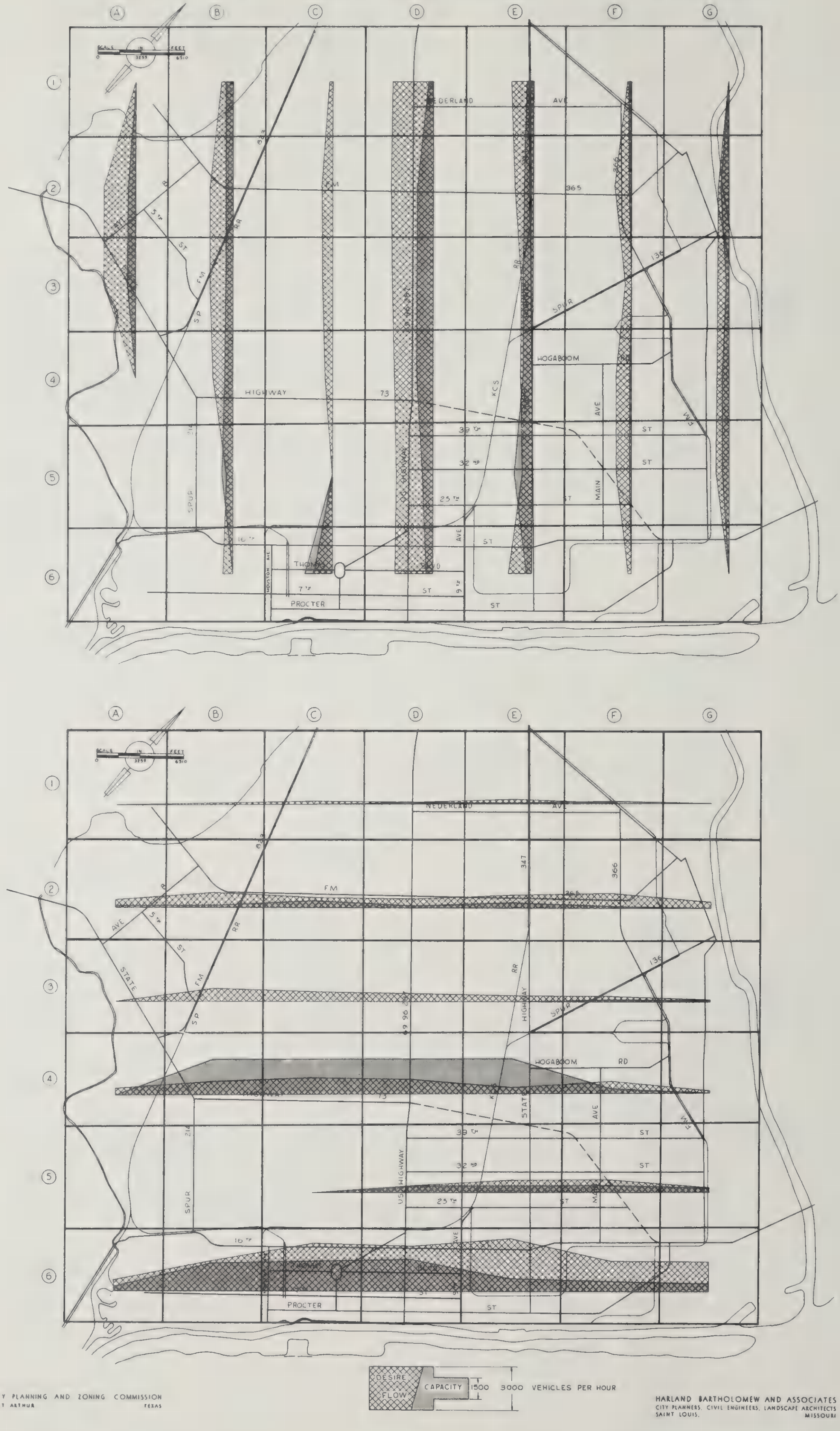
STATE HIGHWAY DEPARTMENT INTERVIEW STATIONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 11

1985 PEAK HOUR DESIRE FLOW



CITY PLANNING AND ZONING COMMISSION
FORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS, MISSOURI

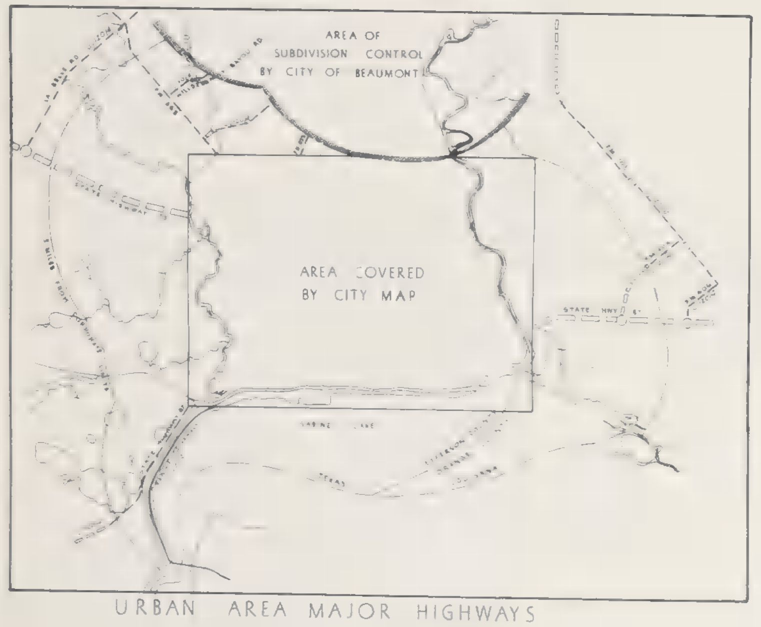
PLATE 12

PROPOSED MAJOR STREET AND HIGHWAY PLAN

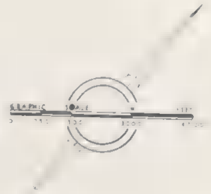
L E G E N D

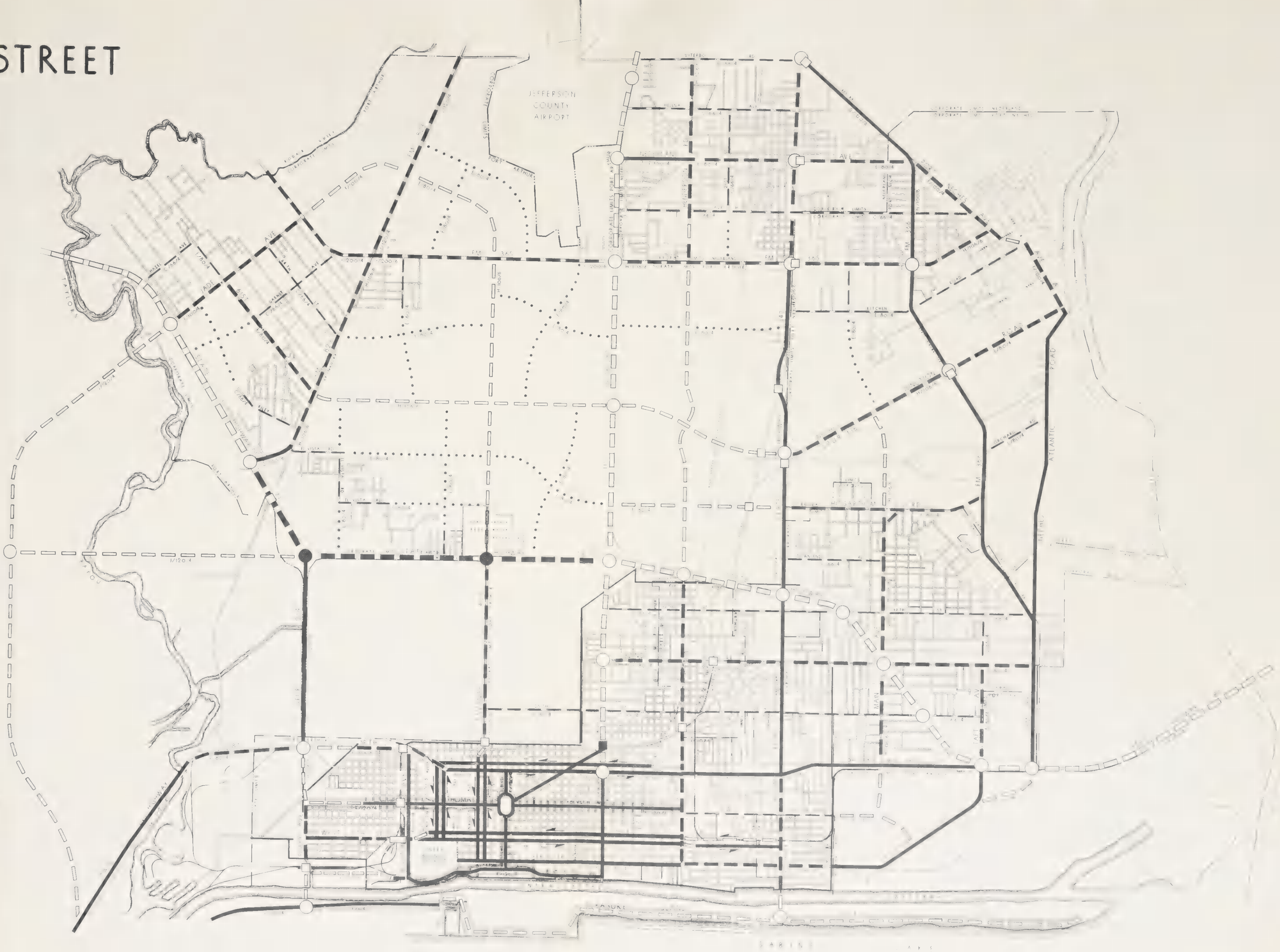
	RIGHT-OF-WAY OF ADEQUATE WIDTH	RIGHT-OF-WAY TO BE WIDENED	RIGHT-OF-WAY TO BE ACQUIRED
MAJOR STREET	━━━	▬ ▬	▭ ▭
PARKWAY	▬▬▬		▭ ▭
SECONDARY MAJOR STREET		— —	• • • • •

	EXISTING	PROPOSED
EXPRESSWAY	▬ ▬	▭ ▭
TRAFFIC INTERCHANGE	●	○
RAILROAD GRADE SEPARATION	■	□



URBAN AREA MAJOR HIGHWAYS





PORT ARTHUR, TEXAS AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS CIVIL ENGINEERS LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

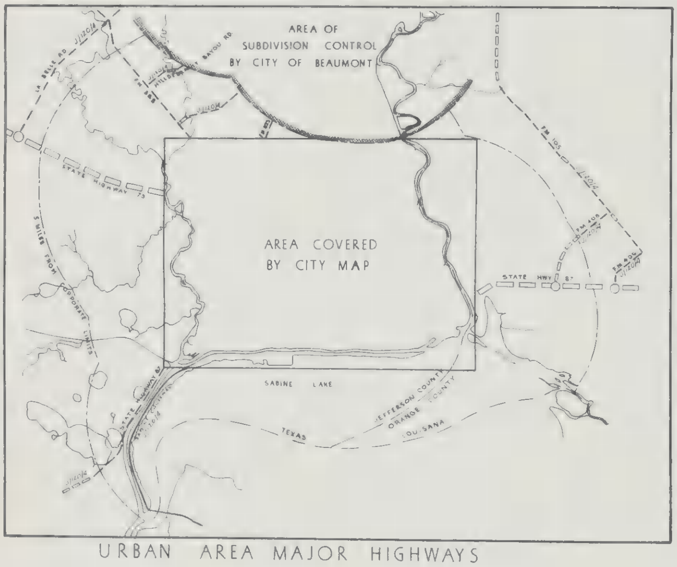
PLATE 13

PROPOSED MAJOR S
AND HIGHWAY PLAN

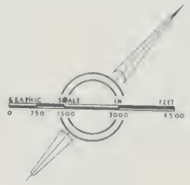
LEGEND

	RIGHT-OF-WAY OF ADEQUATE WIDTH	RIGHT-OF-WAY TO BE WIDENED	RIGHT-OF-WAY TO BE ACQUIRED
MAJOR STREET	▬	▬ ▬	▭ ▭
PARKWAY	▨		▭ ▭
SECONDARY MAJOR STREET		— —	• • • • •

	EXISTING	PROPOSED
EXPRESSWAY	▬ ▬	▭ ▭
TRAFFIC INTERCHANGE	●	○
RAILROAD GRADE SEPARATION	■	□



URBAN AREA MAJOR HIGHWAYS



PORT ARTHUR, TEXAS
AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS CIVIL ENGINEERS LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 13

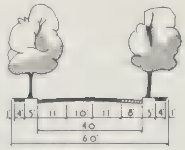
SUGGESTED STREET CROSS SECTIONS

URBAN AREA

60 FOOT RIGHT-OF-WAY

MAJOR STREET--ONE-WAY

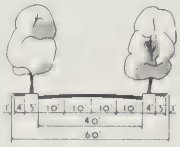
Ⓐ



THREE MOVING LANES, ONE PARKING LANE

SECONDARY MAJOR STREET

Ⓑ

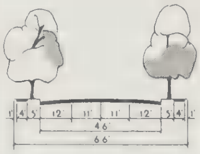


FOUR MOVING LANES, NO PARKING

66 FOOT RIGHT-OF-WAY

SECONDARY MAJOR STREET

Ⓒ

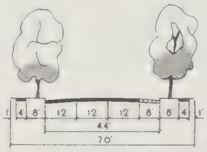


FOUR MOVING LANES, NO PARKING

70 FOOT RIGHT-OF-WAY

MAJOR STREET--ONE-WAY

Ⓓ

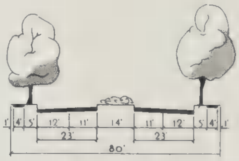


THREE MOVING LANES, ONE PARKING LANE

80 FOOT RIGHT-OF-WAY

MAJOR STREET

Ⓔ

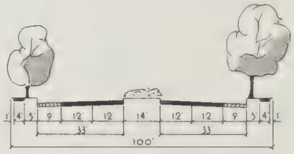


FOUR MOVING LANES, LEFT TURN, NO PARKING

100 FOOT RIGHT-OF-WAY

MAJOR STREET

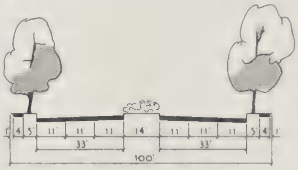
Ⓕ



FOUR MOVING LANES, LEFT TURN, TWO PARKING LANES

MAJOR STREET

Ⓖ

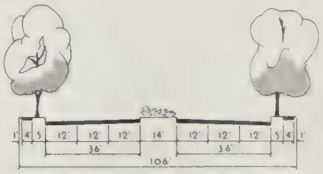


SIX MOVING LANES, LEFT TURN, NO PARKING

106 FOOT RIGHT-OF-WAY

MAJOR STREET

Ⓗ

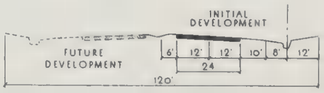


SIX MOVING LANES, LEFT TURN, NO PARKING

RURAL AREA

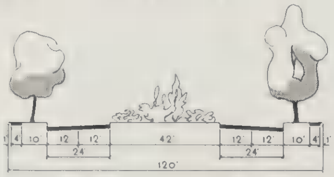
120 FOOT RIGHT-OF-WAY

Ⓙ



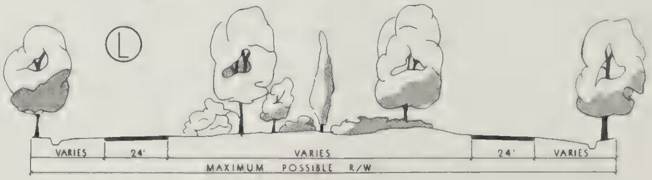
PARKWAY URBAN AREA

Ⓚ



PARKWAY RURAL AREA

Ⓛ



CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS, MISSOURI

PLATE 14

MAJOR STREETS AND HIGHWAYS*

No city can prosper unless it provides itself with completely adequate facilities for the transportation of persons and goods throughout the urban area. A properly designed Major Street and Highway System allows the great variety of transportation media a regulated freedom of movement that is beneficial to the entire community.

The principal function of urban streets and highways is to accommodate the movement of vehicles and pedestrians, provide space for the location of utilities, such as sewer, water, gas, electricity and telephone lines, insure an adequate supply of light and air to adjoining property, and provide a means of access to abutting properties.

A well-planned major street system should bring about the following benefits:

1. Traffic can be more easily controlled on a few high capacity major streets.
2. Larger volumes of traffic can be moved over a few wide streets than could be moved if permitted to disperse over a number of narrow streets.
3. Since many major streets are primarily of general rather than local benefit, they can often be constructed and maintained over a period of years with state and federal financial assistance.
4. Residential areas can be better protected.
5. Greater economies can be had in street construction costs since paving can be designed for actual or estimated traffic needs and type of traffic carried on the street.
6. Between 20 and 25 percent of the total street mileage in an urban area is all that is needed to be developed to major street standards. The remaining street mileage can be designed and constructed for the primary purpose of providing access to abutting properties.

---

*Preliminary Report, "Major Streets and Subdivision Regulations", dated September, 1960, Harland Bartholomew and Associates.

Types of Traffic

Various types of traffic can best be accommodated on major streets having certain differentiating characteristics. Traffic carried by various major street and highway types can be grouped into three general categories.

1. Through traffic is traffic originating outside the city and destined to points beyond the city.
2. External-internal and internal-external traffic consists of trips which originate outside the urban area and which are destined to points within the urban area or, conversely, trips which originate inside the urban area and are destined to some outside point.
3. Internal traffic has its point of origin and its terminus within the urban area.

Types of Streets and Highways

The major streets generally required for the accommodation of the several categories of traffic movement mentioned in the preceding section include radial routes, crosstown routes, bypass streets and circumferential routes, expressways and parkways.

Radial Routes

Radial routes can be compared with the spokes of a wheel with the central business district being the hub. External-internal traffic makes the heaviest use of this type of major street. The large volume of traffic carried on radial routes often necessitates their being widened to increase capacity. This is an expensive procedure since costs of acquiring the industrial, commercial and apartment properties fronting such streets can be prohibitive in many cases. Consequently, maximum use must be made of existing rights-of-way.

Crosstown Routes

As differentiated from radial routes, crosstown streets enable traffic to move across the city from one section to another and are generally at right angles to radial routes. The majority of streets in Port Arthur have been laid out in a grid pattern. This generally makes it easier to obtain crosstown routes than if the streets formed an irregular pattern.

Bypass Streets and Circumferential Routes

Bypass streets and loop routes are planned to allow better traffic flow around various sections of the urbanized area. One type of bypass route should enable traffic to "loop" around the central business district without passing through it. Another type of bypass route enables traffic to circumvent the central urban area and large segments of the city. A third type of bypass route enables traffic to circumvent the entire urban area.

Expressways

Expressways require wide rights-of-way, controlled access, and grade separations with intersecting streets, thus large volumes of traffic can consequently be carried on such routes without the usual conflicts created by intersecting surface streets. Traffic interchanges and grade separations are provided where needed.

The National System of Interstate and Defense Highways, consisting of a 41,000 mile network of limited access expressways, will serve this area with Interstate Route 10. The interstate network will accommodate over 20 percent of the total traffic in this country, yet it will comprise only slightly more than one percent of the 3,000,000 miles of roads, streets and highways in the United States. One of the more important requirements of the interstate system is that it adequately serve traffic in urban areas.

Parkways

An original purpose of parkways was to provide an attractive drive for the motorist. Generally, they were designed to connect large parks and to make them readily accessible from all parts of the urban area. Within urban areas, parkways are generally streets with wide rights-of-way, wide, landscaped medians and are limited to passenger vehicles. These parkways are usually included in the major street system.

Geometric Design Standards

The U.S. Bureau of Public Roads, the American Association of State Highway Officials, State Highway Departments, and local highway officials have gradually developed commonly accepted standards for main thoroughfares and recently have proposed a set of standards for the interstate highway system. Variations in state laws regarding the size and weight of vehicles, however, and differences in local experience are factors that influence the design practices used in any given area. The following are some of the elements considered in the design of a given facility.

1. Major thoroughfares must have sufficient width to accommodate the volume of traffic that can be expected to use them.
2. Alignment should be as direct as possible within the limitations imposed by existing land use and topography.
3. Grades should not be in excess of three to five percent unless minimum curvature and sight distance requirements warrant a steeper grade.
4. Sufficient sight distance should be provided to enable a motorist to pass another vehicle in safety and comfort.
5. It is desirable that there be a minimum of intersecting streets along a major street route.
6. Traffic control devices should be used at intersecting streets for safety reasons and to expedite the flow of traffic on major streets.

The width of traffic lanes has an important bearing on the volume of traffic that can be accommodated. Lane widths of less than 11 feet are generally considered undesirable and lane widths of 12 feet are preferred where there is even a moderate volume of mixed traffic. When traffic flow exceeds the capacity of a two-lane pavement, it is considered desirable to construct a multi-lane pavement, preferably divided. A desirable width for parking lanes is eight feet.

Existing Conditions

Previous sections of this chapter discussed in detail some of the basic facts needed for major street planning, such as how the location of the community with respect to the surrounding transportation media will determine its accessibility to and from other areas, how population distribution and density will determine the future source and volume of the vehicular traffic and how the present and future land use will determine the direction and intensity of traffic movements.

The Present Street System

Port Arthur's present major street system has evolved over the years without the guiding benefit of a comprehensive major street plan. The city was indeed fortunate that wide rights-of-way were provided in the older section of town when the original townsite was recorded. Many new streets in the urban area, however, have been laid out with rights-of-way too narrow to meet present and future traffic needs.

Right-of-way Widths of Existing Major Streets

The width between property lines determines the ultimate traffic capacity of a street. In the majority of cases where sufficient right-of-way exists, pavements may be widened without too much difficulty. However, once adjoining property is developed it is generally difficult, if not financially impossible, to acquire additional right-of-way for widening. Thus, it is extremely important to secure sufficient right-of-way widths for major streets when they are first established.

The right-of-way widths of existing major streets in the Port Arthur urban area are shown on Plate 8 in six classifications. Generally speaking, the urban area thoroughfares have wide rights-of-way; however, there are a few glaring deficiencies. Of obvious concern is the lack of adequate width of 16th Street and Highway 87 between Taylor's Bayou and 9th Avenue. The section between the levee west of Houston Avenue and Woodworth Boulevard is only 60 feet in width. The character of development on both sides of 16th Street makes acquisition of additional right-of-way almost impossible.

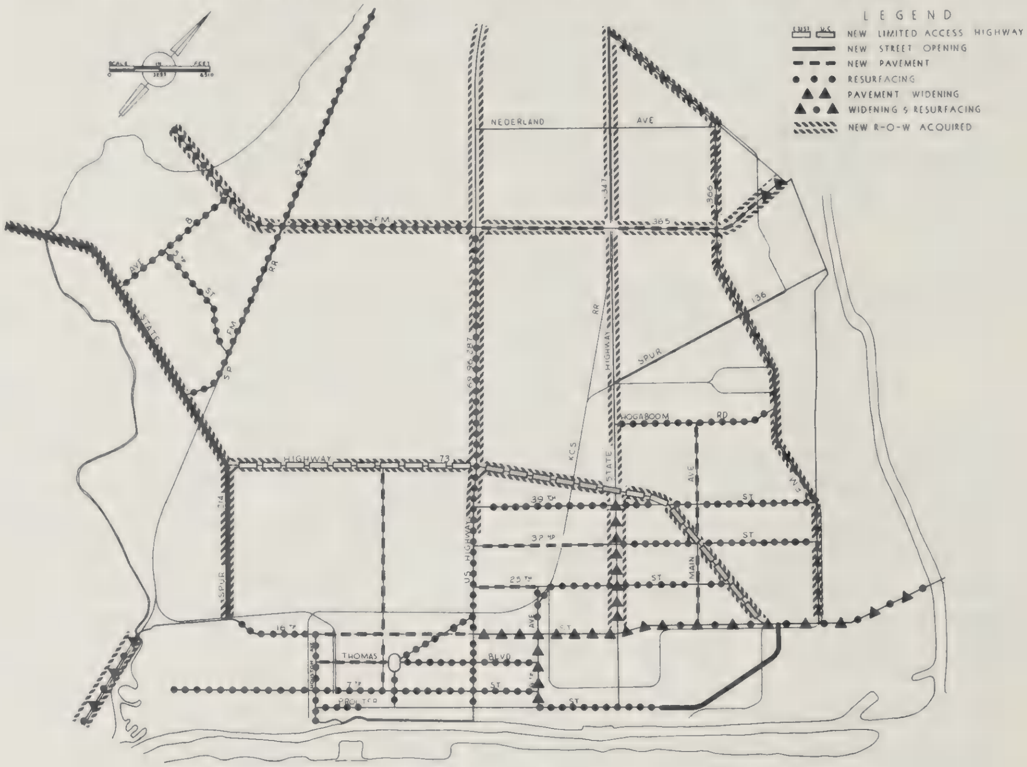
The exact right-of-way width, pavement width, number of moving lanes, and other data regarding major streets is contained in the Appendix section entitled, "Tabulation of Major Streets and Highways".

Past Major Street Improvements

The following sketch shows the location of street improvements that have been made since 1950. These improvements may be classified as follows:

1. Limited access facilities.
2. New street openings.
3. New paving.
4. Resurfacing.
5. Pavement widening.
6. Widening and resurfacing.

PAST MAJOR STREET IMPROVEMENTS 1950-1960



Traffic Volumes

Although existing traffic flow provides a measure of traffic movement and driving habits of a populace and gives a limited indication of traffic demand, it should be remembered that traffic flow alone is not the final criterion in studying the movements of a particular city's population.

To determine the traffic flow on existing major streets, a comprehensive traffic survey was conducted during June, July and August of 1960. The information obtained from the survey described above is presented on Plate 9. It is readily apparent that U.S. Highway 69, 96, 287 carries the heaviest amount of traffic. During the 24-hour count taken on Memorial Boulevard just north of 17th Street, 19,100 vehicles were counted. The next highest count was recorded on 16th Street west of 3rd Avenue when 17,480 vehicles were recorded. Procter Street west of Woodworth

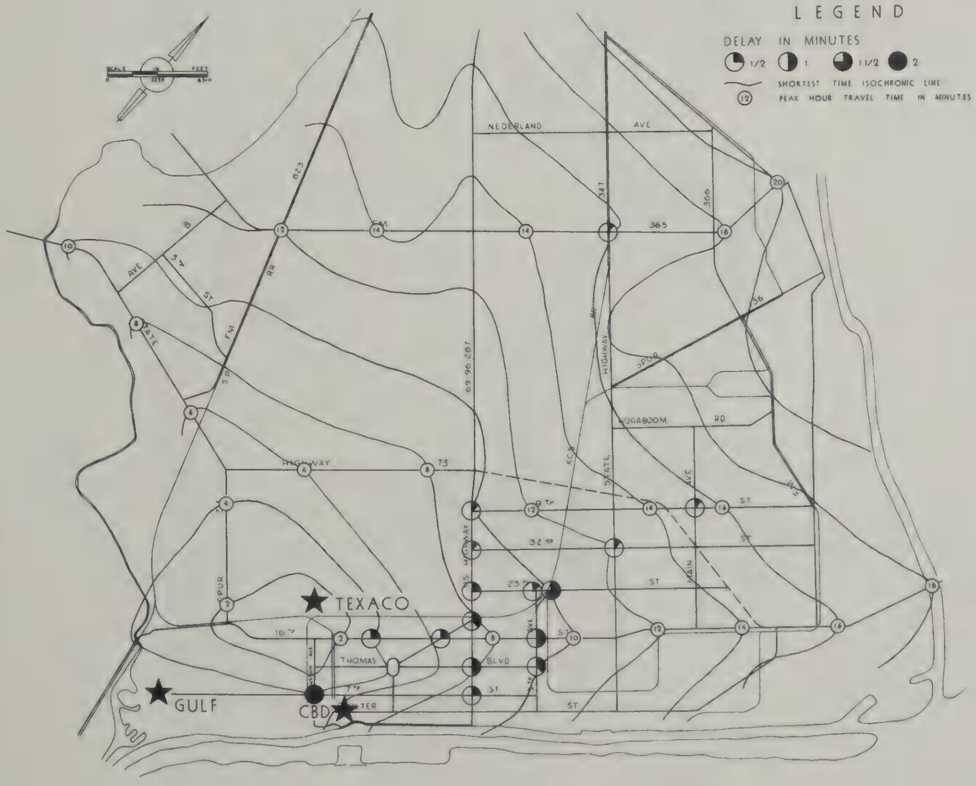
Boulevard recorded in excess of 11,000 vehicles and Highway 87 west of FM 366 carried over 12,000 vehicles in a 24-hour period.

At nine locations the traffic information was further analyzed to determine peak hour volume as a percentage of 24-hour volume and peak hour directional distribution by percentage.

Time and Delay

During the month of August 1960, a time and delay study was conducted with the aid of personnel from various major industries in the Port Arthur Urban Area. Normally, the time and delay study is conducted using the central business district as a starting point, but because of the scattered locations of the major industries, more detailed information could be obtained by having studies originate at selected locations throughout the urban area.

The following sketch shows the combined results of the time and delay study originating at Gulf and Texaco refineries and the central business district.

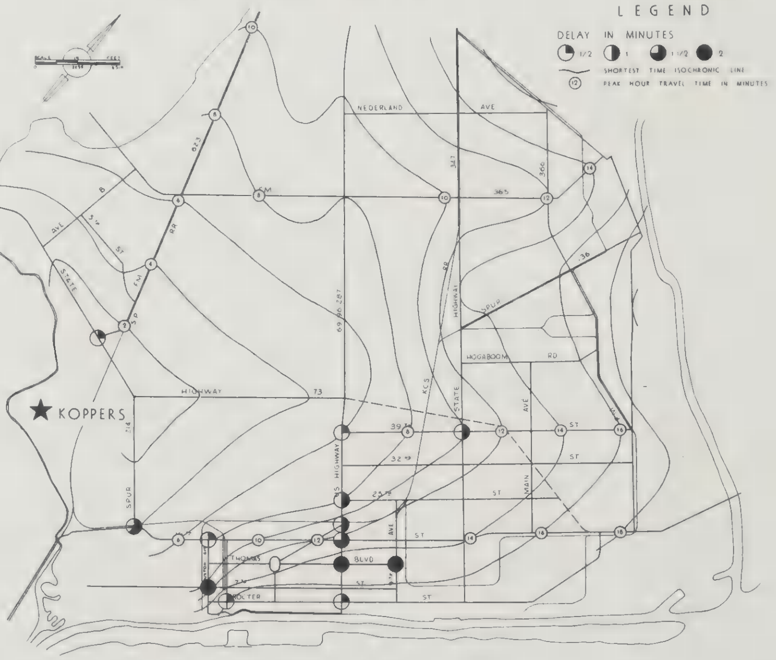


TIME AND DELAY STUDY

The shortest travel times from Texaco to the outlying areas have been connected to form the isochronic lines. Since the three locations have been combined, the following conditions prevail:

1. Gulf employees traveling to any point in the Port Acres area leaving from Gulf Gate #16--subtract one minute from time shown.
2. Gulf employees using 7th Street--add two minutes to time shown.
3. From central business district to Port Acres area--add four minutes to time shown.
4. From central business district to Port Neches via Procter Street extension--subtract two minutes from time shown.
5. From central business district to Nederland--add one minute to time shown.

TIME AND DELAY STUDY

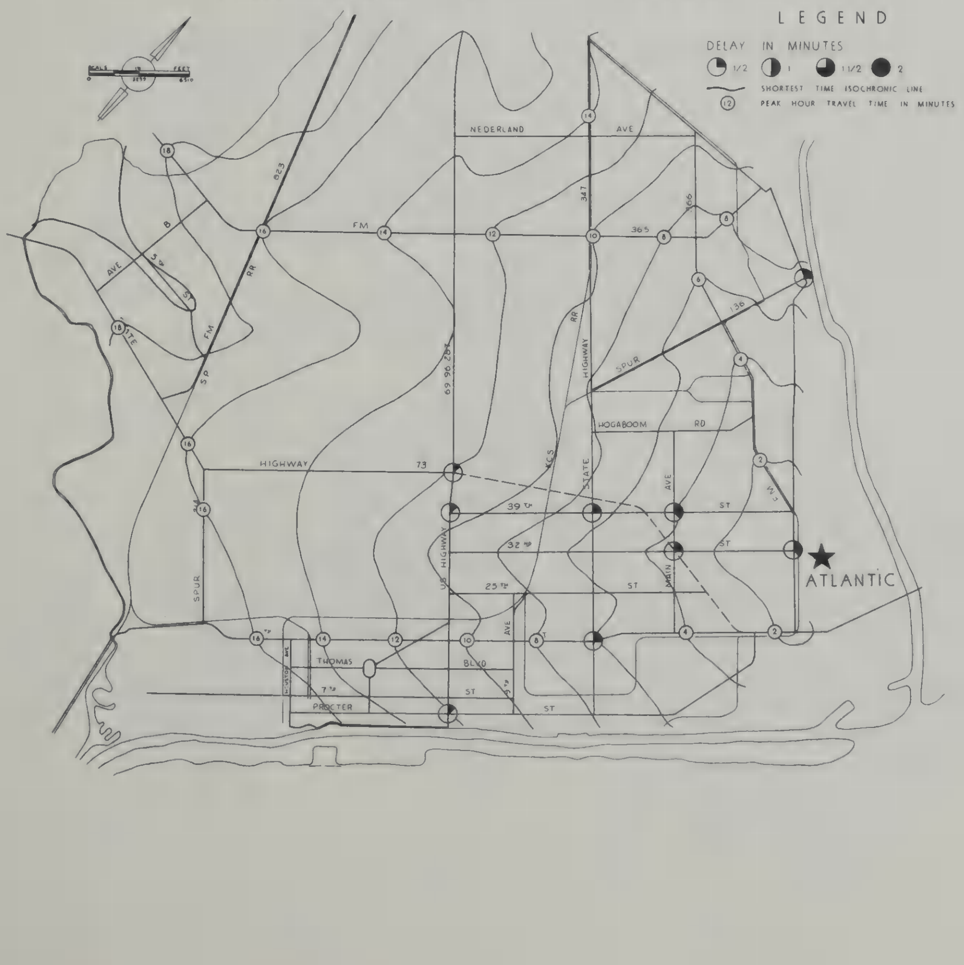


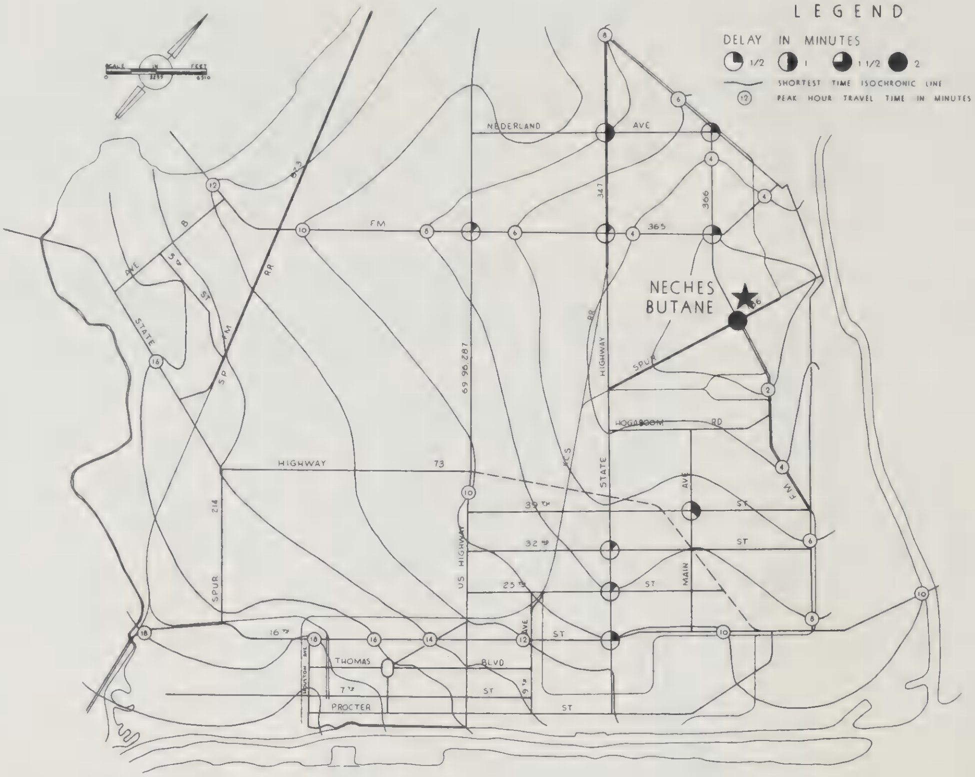
The preceding sketch has its time and delay origin at Koppers Company. This sketch vividly shows the congestion encountered in the Houston Avenue area. The sketch also shows that the travel time to 7th Street and Austin Avenue from Koppers is 14 minutes, while the travel time to Port Neches is approximately the same yet the distance traveled is about three times as far. This is not unusual since more than half of the distance to Port Neches is over expressway type facilities.

The time and delay study sketches originating at the Atlantic Refinery and Neches Butane Products Company are shown below and on the following page.

It should be noted that the isochronic lines on these sketches are much more evenly spaced than in the other sketches. This indicates a more constant driving speed was maintained. The reason for the larger spacing between isochronic lines in the older section of town is that the traffic from Gulf, Texaco and the central business district has already cleared this area before traffic from the outlying areas arrives. The scattered locations

TIME AND DELAY STUDY





TIME AND DELAY STUDY

of the major industries produces a crossing of desire flows during the peak hour traffic. This crossing for the most part is in the area of 16th Street and Woodworth Boulevard. In the final analysis of the time and delay study, the traffic volume center is not in or near the central business district, but rather is near the intersection of 16th Street and Woodworth Boulevard.

Factors Influencing Major Street and Highway Location

Plate 10 shows those developments that influence traffic in the Port Arthur Urban Area.

Of major importance as traffic generators are commercial and industrial areas. To show the relative importance of each of the major industries the approximate employment of each has been indicated. Many other traffic generators are scattered throughout the urban area. Among these are schools, hospitals, numerous shopping areas, truck and rail terminals, and the existing major street system, all of which influence the traffic pattern of the city.

Present and Future Traffic Trends

Planning for future major streets and highways must be based on accurate estimates of future traffic conditions. The most realistic determination as to what actual traffic movements will be at some future date is provided through a study based on the future origin and destination or flow of trips. Prior to any such projection, traffic generation elements and traffic flow trends must themselves be analyzed and projected.

Traffic Generation Elements and Traffic Flow Trends

Traffic generation elements are basically vehicular registrations or the "number of vehicles", gasoline consumption per vehicle or "usage of the vehicles", and finally population growth or the "people using the vehicles". Plate 11 consists of four charts that show changes that have taken place in the aforementioned elements during the last 15 to 20 years. All have had significant but varying increases over the past years.

Vehicular Registration

The first chart on Plate 11 shows the biennial cumulative percentage increases in vehicular registrations 1945-1959 for the United States, for Texas and for Jefferson County. The relationship between vehicle registrations and population must be given careful study.

In Jefferson County there were .40 vehicle per person in 1950, or 2.46 persons per vehicle. In 1960, this had increased to .49 vehicle per person, or 2.01 persons per vehicle. The basis for the 1960 figures is a vehicle registration of 120,998 and a population of 243,693 persons.

From 1950 to 1960, there was an average annual increase of .009 vehicle per capita. Projecting this figure over the 25-year planning period produces a 1985 registration of .72 vehicle per capita. This is an increase of .23 vehicle per capita over 1960. Expressed in terms of total vehicles, this means that if the population of Jefferson County reaches 587,480 in 1985 as estimated, there will be at that time 422,975 automobiles using the streets and highways of the county or three and one-half times as many as in use today.

Gasoline Consumption

A measure of the usage of vehicles can be obtained from a study of gasoline consumption in terms of gallons of gasoline consumed per vehicle. An increase in the usage of vehicles will obviously cause a direct increase in traffic volumes. In 1947 the average vehicle used approximately 760 gallons of gasoline. The Texas average that year was 725 gallons per vehicle. Since 1947 the Texas average has remained below the United States' average except in 1952-53 following the Korean War. The tremendous upsurge brought Texas' average to a high of 790 gallons per vehicle. Projection of fuel consumption to 1985 indicates a future consumption figure of 777 gallons per vehicle. This is comparable to the present United States' average.

Population Growth

The percentage population increases of Port Arthur, Jefferson County, Texas and the United States since 1940 are also shown on Plate 11. The population of Port Arthur has increased more rapidly than that of Jefferson County or the State of Texas which, in turn, increased more rapidly than the United States. With a 1960 estimated population of 70,210 and a 1985 estimated population of 150,840, Port Arthur's population will have increased 115 percent by 1985.

Traffic Flow Trends

The flow of vehicles approaching Port Arthur has increased markedly since 1949. To illustrate this increase, 24-hour traffic counts taken at a cordon line are shown on Plate 11. Population for the 1950-60 period has increased 1.24 times, present vehicle registration per person is 1.22 times that of 1950, while gasoline consumption has increased slightly to 1.15 times that of 1950, producing a combined ratio of 1.74 which is slightly lower than the increase in traffic flow over 1950.

Future traffic flows can be estimated from the increase factors for vehicle registration, usage and population. The ratio of 1985 traffic flow to 1960 traffic flow on an average basis for the Port Arthur Urban Area is obtained by multiplying the ratio of estimated 1985 population to the 1960 population (2.26), by the ratio of estimated 1985 vehicular registration per capita to 1960 registration per capita (1.45), and then multiplying this by the ratio of estimated 1985 usage per vehicle to the 1960 usage per vehicle (1.10). This results in a combined increase factor of 3.6.

1949 Origin-Destination Survey

In 1949, the Texas Highway Department, in cooperation with the Public Roads Administration, prepared an external Origin-Destination (OD) Study for the Port Arthur area. Before this study could be used in the analysis of the present street system, however, it was necessary to calculate an increase factor to be used in upgrading the information from its 1949 base to a 1960 base. This was accomplished in a manner similar to that described earlier. The ratio of vehicular registrations per capita for 1949-60 (1.22) was multiplied by the population increase ratio for 1949-60 (1.24) and the vehicle usage ratio for 1949-60 (1.15). The resulting combined increase factor for the period 1949-60 is 1.74.

Expansion of 1949 Origin-Destination Survey

The 1949 OD survey covered only two types of traffic movements, external-external and external-internal. In a metropolitan area such as Port Arthur, these are the two minor traffic movements. A system was devised to upgrade and project this 1949 OD survey for these two types of traffic movements.

Analysis Procedure

To move beyond the usual origin-destination presentation of a series of lines representing desires crisscrossing in every direction, a desire-flow analysis has been used, that is, the desire expressed by the OD survey has been assigned to the most logical route of flow. A series of corridors, oriented parallel to the existing street system, was developed for the urban area. These corridors were so oriented that existing major streets were not split by a corridor line. Superimposing the north-south corridors on the east-west corridors created a number of blocks or "zones".

The 1960 external-external and external-internal movements, interpolated from the 1949 OD survey, were assigned to the logical corridor in which the movement would take place. The corridor analysis lines were then superimposed on the 1960 traffic flow map; external-external and external-internal trips were subtracted from the total traffic flow at each analysis line, and the remainder is 1960 internal-internal desire flow.

1985 Desire Flow

As pointed out in a previous section the over-all increase factor for 1985 traffic in the urban area, utilizing population, vehicle registration and usage factors is estimated to be 3.6 times that of present traffic. External-external and external-internal movements were expanded by this figure and assigned to the analysis corridors.

To expand internal-internal movements by this figure would be fallacious since areas that are completely developed will experience little increase in traffic or may even experience a traffic decrease, while areas which are undeveloped will supply much of the increase in traffic. To determine the 1985 internal-internal movements each of the zones created by the corridor analysis lines were analyzed in detail. A 1960-85 population increase factor and an expansion factor composed of population, vehicle registration and usage were determined for each zone. The 1985 internal-internal movements were then calculated for each developed zone. For zones which are presently undeveloped, internal-internal movements were assigned by comparison with present zones which are developed. This comparison was based upon similarity of population, type of development and location with respect to industrial areas, commercial areas and other major traffic generators.

The trips within each zone were then assigned to a north-south or east-west corridor. For zones already developed the percentage assignment of these trips was determined from the present flow. For undeveloped zones the percentage assignment was based upon zones of similar development and relationship to land use.

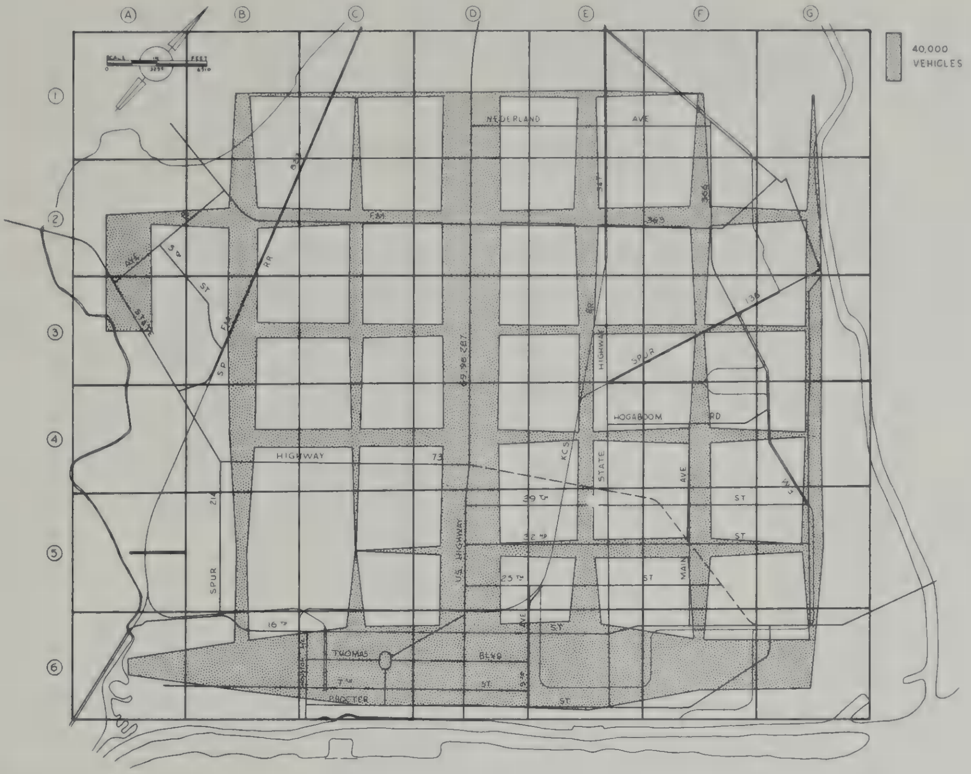
1985 Corridor 24-Hour Desire Flow

After completion of the traffic expansion and assignment indicated above, flow maps were prepared to depict desire flows and estimated average daily traffic for the urban area. The sketch on the following page was prepared to indicate the 1985 desire flow within the analysis corridors. The sketch indicates the 24-hour desire flow in east-west and north-south oriented corridors. Thus it is for this traffic flow that the major street network must be designed.

1985 Peak Hour Desire Flow

From the indicated 24-hour corridor desire flow, data was developed to indicate areas of general capacity

1985 CORRIDOR 24 HOUR DESIRE FLOW



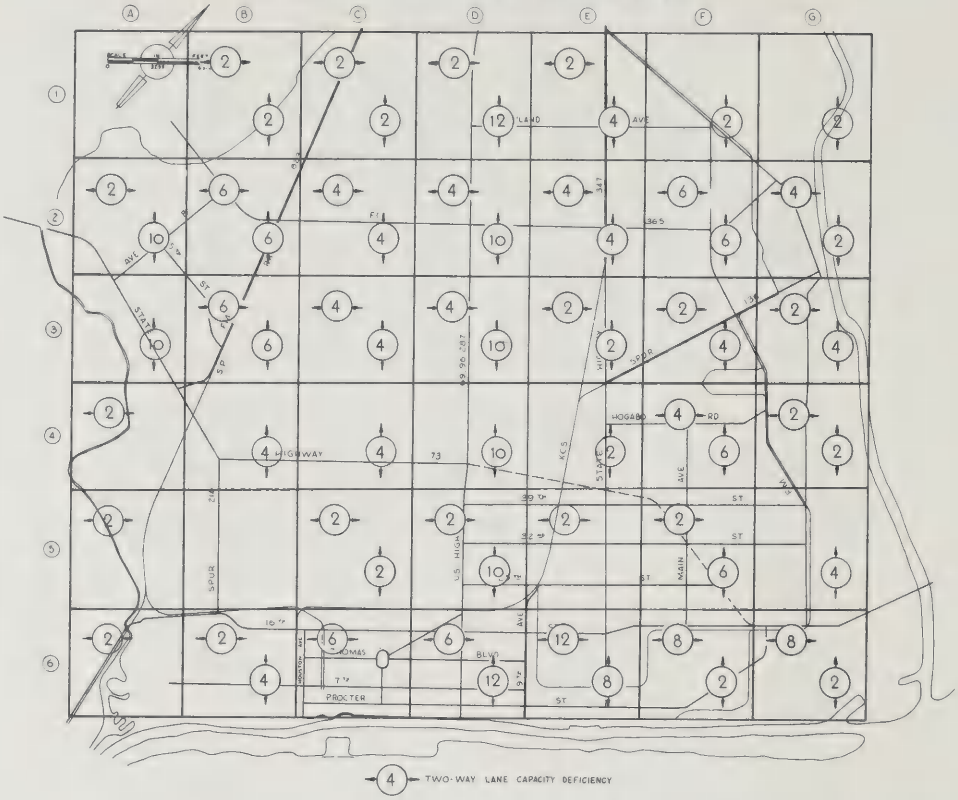
deficiency or adequacy to guide in determining desirable locations for major streets and the general lane requirements by areas.

Plate 12 indicates the 1985 corridor peak hour one-way desire flow. These peak hour one-way desire flows were calculated utilizing the 1985 24-hour desire data in conjunction with estimated peak hour percentage and directional distribution factors based upon existing factors as presented in Plate 9, 24-Hour Traffic Flow--1960.

The computation of the hourly capacities for the corridors was accomplished utilizing the existing major street system. The capacities indicate existing conditions on the major street system. Capacities were estimated for all major streets at major street intersections. In most instances capacity-deficiencies indicated occur at these intersections. This indicates that full consideration must be given to increasing intersection capacities by separating turning movements and regulation of traffic signals to favor the major traffic movement, rather than widening the entire street.

In order to summarize the meaning of Plate 12, the sketch on the following page was prepared to indicate lanes of deficiency.

1985 CAPACITY-DEFICIENCY



The number within each circle in each zone indicates the total two-way lane deficiency for that zone at the 1985 level of traffic desire flow for the direction indicated by the arrow. Not all of the deficiencies indicated for a corridor will necessarily be met within that corridor in the proposed major street plan. All of the requirements indicated on the deficiency sketch have been satisfied in the proposed major street plan.

Proposed Major Street and Highway Plan

The proposed major street and highway plan is presented on Plate 13, supported by the recommended street cross sections on Plate 14 and the tabulation of major streets and highways found in the Appendix. Plate 13 shows the major street plan for the Port Arthur Urban Area and the insert on the plate shows the major highway plan for the five-mile area within which subdivision control is exercised by the Planning and Zoning Commission.

Whenever possible and feasible the proposed plan recognizes existing major streets and highways, in order to make full use of past improvements. Proposed new routes are reduced to a minimum within the developed areas of the city, but in certain instances they must be provided to remove obstructions to the free flow of traffic and to furnish additional lane capacity. Many of the proposed new routes are in presently undeveloped areas and their rights-of-way may be acquired without cost to the city by requiring their dedication at the time new subdivisions are laid out.

Grade Separations

The major street plan proposes grade separations at nearly every major street crossing of railroad main lines. The grade separations are shown on Plate 13, different symbols being used to indicate existing and proposed structures.

Limited Access Expressways

The expressway system shown on the plan is basically the system proposed by the Texas Highway Department. One modification is proposed in the system. The plan presented in 1954 by the Highway Department proposed that Woodworth Boulevard be expressway from Procter Street to 16th Street. The traffic analysis does not reveal sufficient traffic to demand a limited access facility in this area. The major street plan presented herein proposes that the expressway section end at 16th Street in a major traffic interchange.

Major North-South Arteries

Austin-Waco. The plan recommends that Austin and Waco be used as a pair of one-way streets from 16th Street to Lakeshore Drive.

Savannah Avenue. The plan proposes that Savannah and Augusta be improved as a pair of one-way streets from Procter Street to the levee. North of the levee it is proposed that the existing right-of-way be widened to Highway 73 and then extended north to intersect FM 365 and FM 823.

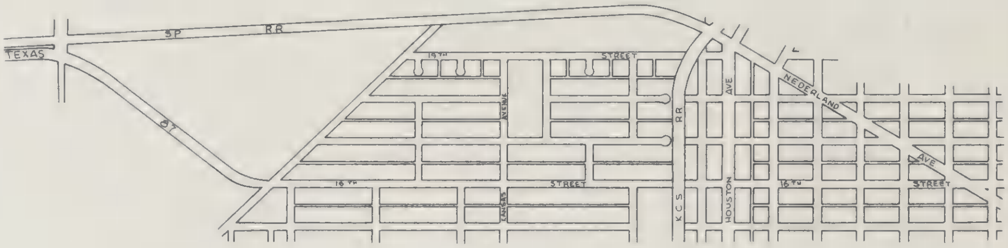
Ninth Avenue. The plan proposes that 9th Avenue be improved and extended from Procter Street to Spurlock Road north of Nederland.

Highway 347-Stadium Road. The plan proposes that Highway 347-Stadium Road be extended south across the Intracoastal Waterway. Bridge height should be sufficient to allow barge traffic to clear the bridge without opening the span.

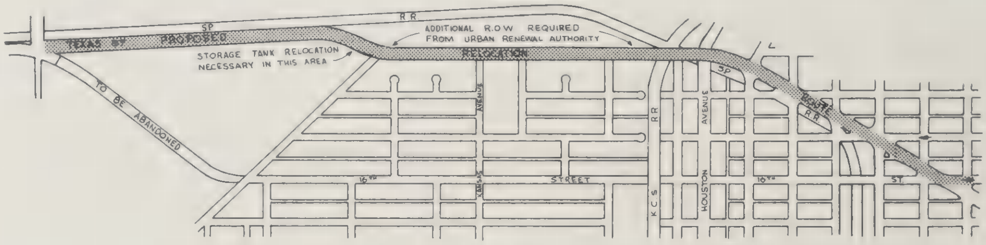
Major East-West Arteries

16th Street-Highway 87. The plan proposes several changes in the routing and use of this street. From

Nederland Avenue West, the plan recommends that 16th Street be abandoned as a major street and that Nederland Avenue and 19th Street be improved and extended to Spur 214. This will require that the urban renewal plan for this area be revised. It is felt that this would be advantageous to the plan because it will remove a major street from the urban renewal area and will enhance and protect the value of the area for residential use. The following sketch shows the proposed urban renewal plan in the 19th Street area and the consultant's suggested plan.



URBAN RENEWAL PROPOSED PLAN



SUGGESTED RELOCATION OF 16TH STREET

The plan further proposes that 16th Street and 17th Street be used as a pair of one-way streets from 9th Avenue to Nederland Avenue.

Because of restricted right-of-way through the Gulf Refinery Area, the plan recommends that the existing right-of-way be widened to 80 feet and the pavement be widened to four lanes divided by a median strip.

Bypass or Distributor Routes

Spur 214. The plan suggests that Spur 214 be extended south from Highway 87 across the Intracoastal Waterway to connect with the Sabine Causeway Road.

Highway 73, 87 and Avenue B. As a future bypass route for Highway 87 from the south and FM 823 from the north, the plan proposes the extension of Highway 87 south of Gulf Refinery to the interchange of 73 and Avenue B in the Port Acres area. The plan further provides for the extension of Highway 73 from its intersection with Spur 214 directly west to interchange with the Highway 87-Avenue B connection.

Parkways

One additional parkway is proposed on Pleasure Island and should be developed in conjunction with the park program.

Bridges

Presently one high bridge crosses the Neches River east of Port Arthur. This bridge eventually should be supplemented with a parallel structure. The draw-bridge which crosses the Intracoastal Waterway should be removed and replaced by two bridges having a minimum vertical clearance of 50 feet from mean low tide to allow barge traffic to pass without disturbing vehicular traffic.

The Central Business District

The importance of providing adequate vehicular access to the central business district cannot be overemphasized. The area has more significance than merely being a place where shopping is done and business is transacted. It is a major source of tax revenue and the city's financial welfare depends to a large extent on the strength and stability of downtown business values. The proposed major street plan has been designed to provide adequate access to and from the central area. A later section in the Comprehensive Plan is devoted to the central business district, its problems and their possible solutions.

Suggested Street Cross-Sections

The various types of cross-sections recommended for the development of the major street and highway plan are shown on Plate 14. On Plate 13, the Major Street and Highway Plan, each major and secondary major street has a cross-section designation. An explanation of the symbol is as follows:

F/100/4

F	denotes cross-section F as shown on Plate 14
100	denotes width of right-of-way of proposed cross-section
4	denotes number of moving lanes proposed.

The appropriate cross-section for a given major street or highway was determined in accordance with its function in the system. The 1985 capacity requirement was the primary consideration in selecting the proper cross-section.

Development of the Major Street and Highway Plan

The adoption of the major street and highway plan by the City Planning and Zoning Commission and the City Commission is the first step in carrying out specific proposals. The plan sets out general concepts; the exact location, grade and alignment can only be determined by subsequent actual street and highway engineering. The major street and highway plan should be considered reasonably flexible (to the point of not violating its basic principles) and should be modified from time to time to meet changing or unforeseen conditions.

Subdivision Control

Subdivision control together with implementation of the zoning ordinance are the most important tools available for carrying out the Comprehensive City Plan. Subdivision control is particularly important as a means of providing needed rights-of-way for major streets in the outlying areas of the community. When the major street plan is adopted by the City Planning and Zoning Commission, the action puts all property owners on notice as to the location of future major streets. If a parcel of land through which a major street will extend in the future is subdivided, the owner can be required to provide the right-of-way.

The way in which land is subdivided also affects the value and character of the residential neighborhood thus created. The proper adjustment of the streets in the subdivision to the major thoroughfare system will have an important bearing on the desirability of the area for residential purposes. Once streets are plotted and lots are laid out, the pattern of that portion of the city is so firmly established that it is almost impossible materially to change it in the future. Therefore, it becomes most necessary to insure the proper layout and development of the subdivision in the first instance. Without such control and in the absence of the Comprehensive Plan, past mistakes will be repeated and it will be impossible to create the type of community which the citizens of Port Arthur desire.

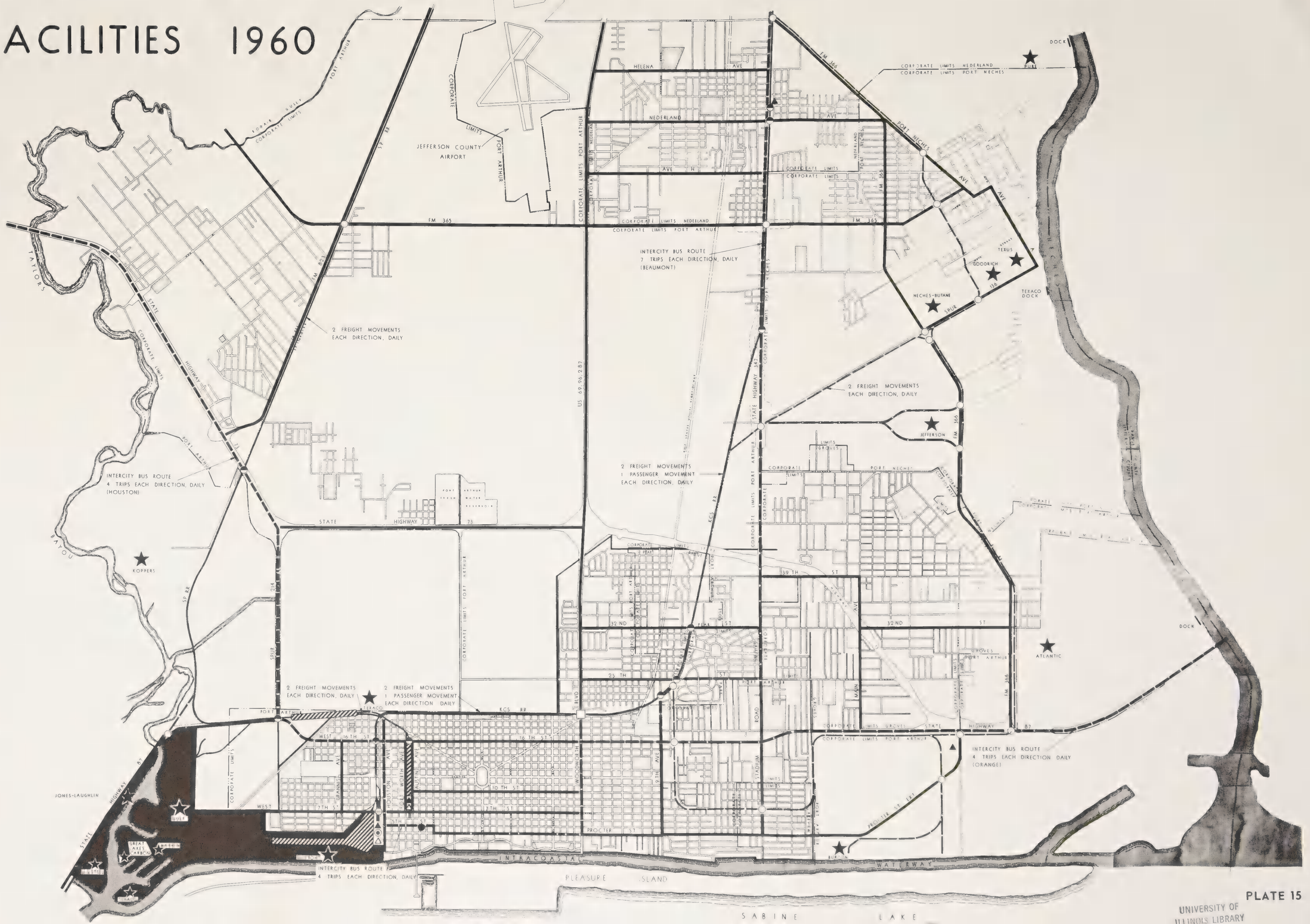
Successful subdivision control, besides promoting the community's orderly development, will serve the important purpose of preventing premature subdivisions which are laid out but never develop as designed, with the result that blighted areas are created which burden the city with increased taxes and debt if municipal services and improvements have been extended to the area. A powerful deterrent is to require the subdivider to install at his own cost public improvements of high standard.

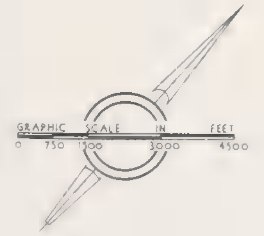
The previously submitted regulations establish the procedure and minimum standards to be observed by all new subdivisions. The proposed standards are similar to the ones presently in existence in the City of Port Arthur.

TRANSPORTATION FACILITIES 1960

LEGEND

- ▬ TRUCK ROUTE
- ▬ ▪ ▬ BUS ROUTE
- ▬ ▬ ▬ BUS & TRUCK ROUTE
- ― RAILROAD MAIN LINE
- – – – RAILROAD SPUR
- ● PASSENGER DEPOT (BUS)
- ◉ PASSENGER DEPOT (RAIL)
- ▲ MOTOR FREIGHT TERMINAL
- △ RAIL FREIGHT TERMINAL
- □ GRADE SEPARATION
- ○ GRADE CROSSING
- ◓ GRADE CROSSING WITH FLASHING LIGHT
- ▨ RAILROAD YARDS
- ★ MAJOR INDUSTRIAL SITE
- ■ PORT AREA
- ▒ SABINE-NECHES WATERWAY





PORT ARTHUR, TEXAS AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS CIVIL ENGINEERS LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

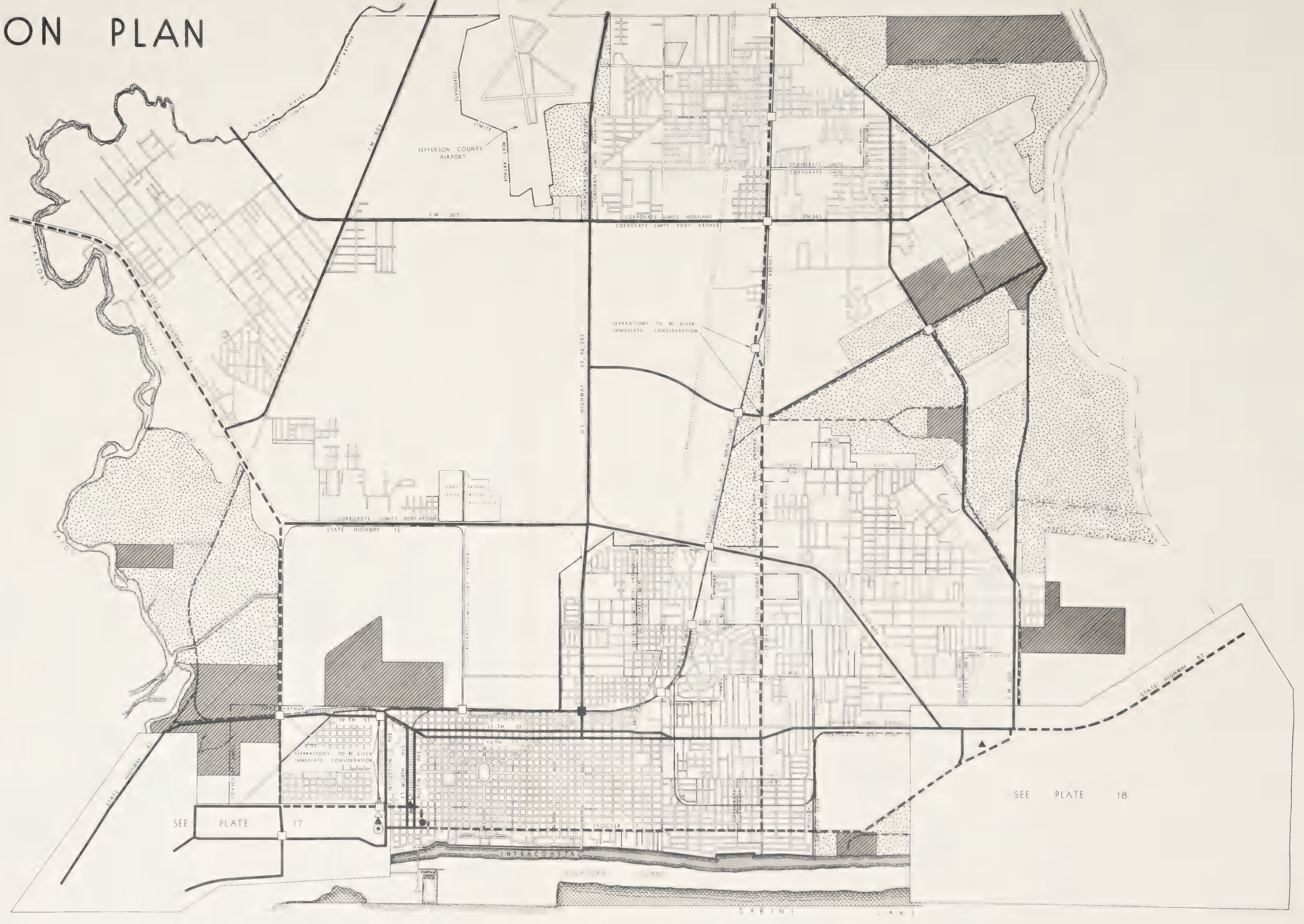
PLATE 15

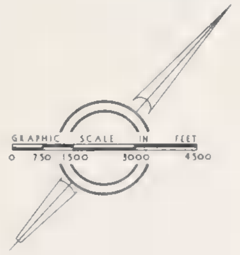
UNIVERSITY OF
ILLINOIS LIBRARY

PROPOSED TRANSPORTATION PLAN

LEGEND

▬	TRUCK ROUTE
▬ ▪ ▬	BUS ROUTE
▪▪▪▪	BUS & TRUCK ROUTE
─	RAILROAD MAIN LINE
- - -	RAILROAD SPUR
●	PASSENGER DEPOT (BUS)
◉	PASSENGER DEPOT (RAIL)
▲	MOTOR FREIGHT TERMINAL
△	RAIL FREIGHT TERMINAL
■	EXISTING GRADE SEPARATION
□	PROPOSED GRADE SEPARATION
▥	RAILROAD YARD
▨	EXISTING INDUSTRIAL AREA
▒	PROPOSED INDUSTRIAL AREA
▓	INTRACOASTAL WATERWAY
▩	PROPOSED SPOIL DUMPING SITE





PORT ARTHUR, TEXAS AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

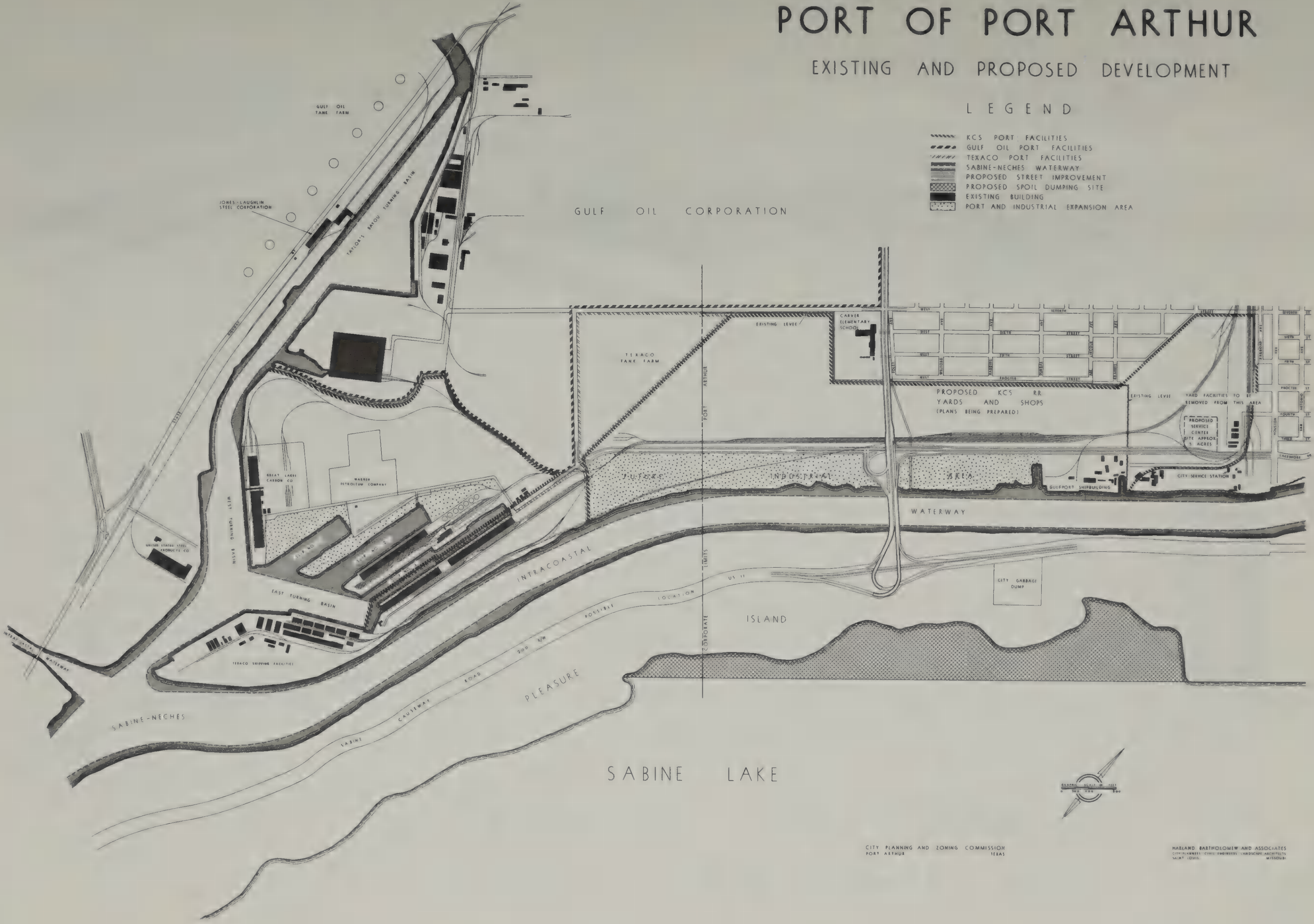
NOVEMBER, 1960

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 16

PORT OF PORT ARTHUR

EXISTING AND PROPOSED DEVELOPMENT



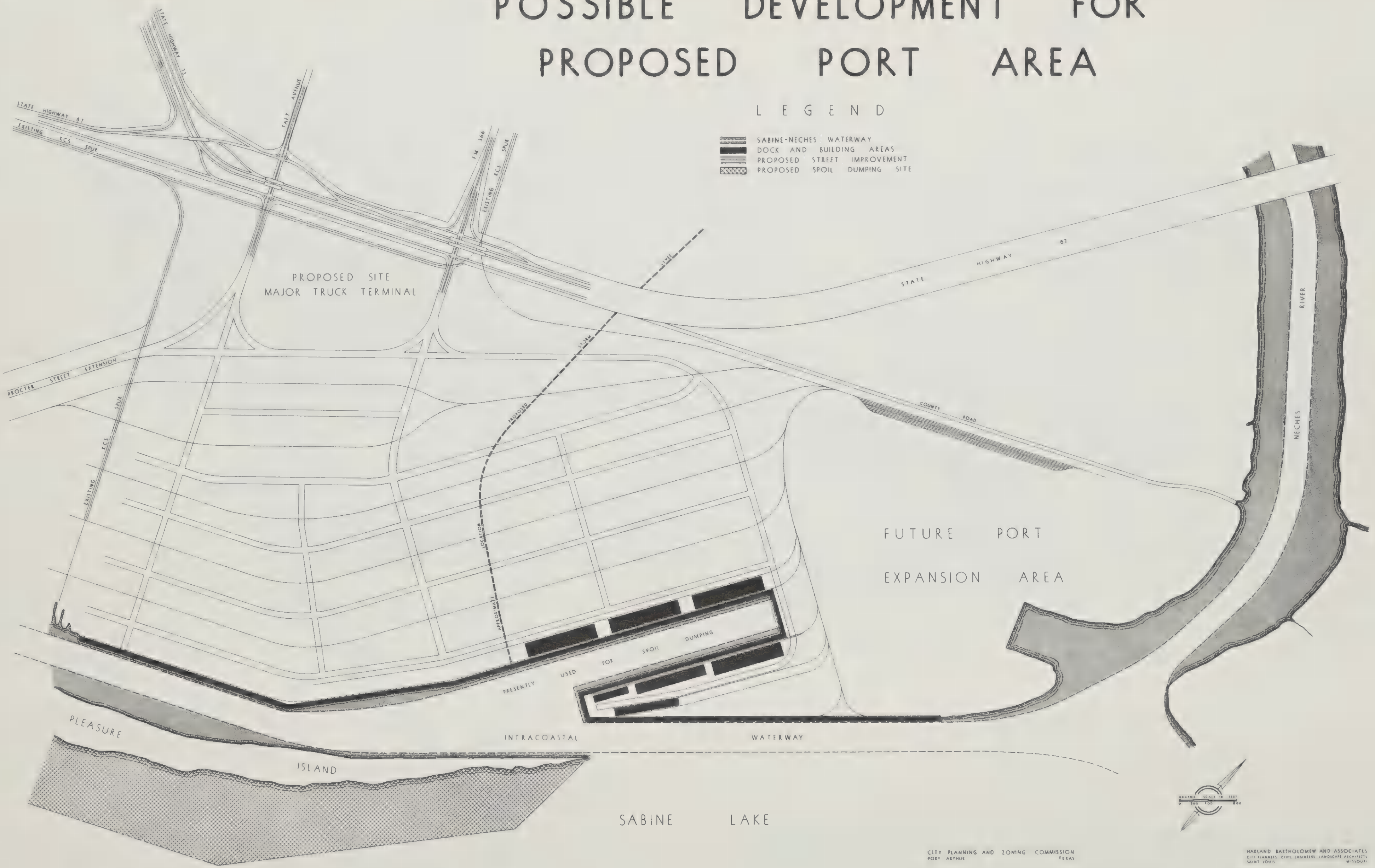
CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS CIVIL ENGINEERS LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 17

PLATE 18

POSSIBLE DEVELOPMENT FOR PROPOSED PORT AREA



CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS CIVIL ENGINEERS LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

TRANSPORTATION*

Existing Transportation Facilities

Plate 15 shows the transportation facilities now existing in Port Arthur, such as truck terminals, bus and truck lines, railroads and the Port. The volume of daily bus and rail traffic movements and all railroad grade crossings located on bus or truck routes are shown and those crossings protected with a flashing light are designated. The location of major industries are also shown.

Truck Transportation

Central Freight Lines, Incorporated, operates throughout the urban area. The facilities of this company serve the "Golden Triangle" area and points to the north and south. Other truck lines, such as Herrin, Yellow Transit and Red Ball, offer service and connections throughout the United States.

The Southern Pacific Transport Company is a subsidiary of the Southern Pacific Railroad with terminal facilities near the corner of Seventh Street and Austin Avenue in Port Arthur. Truck-load shipments are delivered in Texas and Louisiana and "piggy-back" service is provided for long distance out-of-state hauling.

Railroad Transportation

Kansas City Southern. This road provides both freight and passenger service to Port Arthur. Two daily freight movements and one daily passenger movement are provided on the main line track to Beaumont. There are also two freight movements daily from the main line to Port Neches. There are 11 grade crossings of the Kansas City Southern Railroad with streets and highways in the Port Arthur area, six of which are protected by flashing signals. The railroad and U.S. 69, 96 and 287 are separated north of 19th Street by an underpass.

Southern Pacific. This road provides only freight service to Port Arthur. Two daily freight movements are provided to Beaumont. There are four grade crossings with major truck and bus routes along the main line of the Southern Pacific Railroad in the urban area, three of which are protected by flashing signals.

---

*Preliminary Report, "Transportation", dated November, 1960, Harland Bartholomew and Associates.

Bus Transportation

The volume of intercity bus traffic, shown on Plate 15, indicates the relative importance of intercity buses as a part of the transportation network. Daily routes are maintained to Houston, Beaumont, and Orange. The heaviest traveled route is to Beaumont with seven round trips daily. Four round trips are made to Houston and Orange each day. The terminal is located within the central business district at the corner of 5th Street and Waco Avenue. All loading takes place off-street and does not interfere with traffic movements in the streets.

Water Transportation

The Port of Port Arthur is located at the junction of the Sabine-Neches Waterway and the Intracoastal Waterway, and is owned and operated by the Kansas City Southern Railroad. Within the area shown on Plate 15 as the port area, Gulf and Texaco Oil Company own and operate their terminal facilities while Warren Petroleum Company and Great Lakes Carbon Company lease property and operate terminal facilities. Also shown on Plate 15 is the Intracoastal Waterway and the Sabine-Neches Waterway. Major terminal areas are noted along the waterways.

Air Transportation

The Port Arthur Urban Area is presently served by three major air lines which provide both freight and passenger service. They are Eastern Air Lines, Delta Air Lines and Trans-Texas Air Ways.

Facilities at the Jefferson County Airport appear to be adequate. The main runway, which is oriented in a northwest-southeast direction, is 5,750 feet in length. This length is sufficient to handle the largest piston-driven four engine passenger plane now in service, the DC-7B. It is also long enough to provide service for turbo-prop planes of the Electra type. This 5,750-foot length will also accommodate medium-haul jet planes in the future. The secondary runways at the airport are oriented in a northeast-southwest direction and a north-south direction. Their present lengths are 4,990 and 5,070 feet respectively.

Proposed Transportation Plan

The Proposed Transportation Plan is shown on Plate 16. This plate shows existing and proposed industrial areas, railroad routes, a proposed system of truck routes and the location of rail, bus and truck terminals. The proposed industrial areas are, for the most part, vacant land. Although there are only a few industries located on the main line of the Kansas City Southern Railroad, spurs have been extended to serve many industrial areas. Ample industrial areas have been set aside along the Neches River and the Intracoastal Waterway and to the west along Taylor's Bayou. In these areas, new industry can be adequately served with rail spurs and major thoroughfares without conflict between the two.

Truck Transportation

The Proposed Transportation Plan indicates a system of truck routes through and around the Port Arthur Urban Area to accommodate through truck movements, and to allow direct access to terminal and industrial areas. Truck routes would follow existing and proposed highway improvements in all four major quadrants. All designated federal and state highways are included in the system. The main truck movements from east to west would be carried on Procter Street, Highway 87 and 16th and 17th Streets, State Highway 73 (upon its completion) and FM 365. The major north-south routes would be FM 366, State Highway 347, U.S. 69, 96, 287 and Highway 73 and Spur 214. Since the Major Street Plan will provide more direct ingress and egress to the central business district, cross connections between truck routes are provided on Houston, Fort Worth and Austin Avenues.

Railroad Transportation

The major proposal of the Transportation Plan is the consolidation of the Southern Pacific main line facilities with the existing Kansas City Southern main line. While this plan would require a re-routing in Beaumont of the Southern Pacific shipments destined for Port Arthur, the cost of maintaining a consolidated main line would be much less than the maintenance cost of two separate main lines.

The Kansas City Southern presently has plans being prepared to relocate its existing yard facilities. The new yard facilities will occupy the area to the east of the proposed Spur 214 extension and south of West Procter Street (see Plate 17).

The railroad plan also suggests a new connection from the existing Kansas City Southern main line north of 19th Street to the industrial area between Fort Worth and Austin Avenues.

Bus Transportation

The present Greyhound Lines' facilities appear to be adequate. However, as the population of the urban area increases, it will be necessary to provide additional service. This additional service, of course, will require more space for terminal facilities.

The transportation plan proposes a relocation of the intercity bus routes entering and leaving the city as follows:

To Houston - 7th Street to State Highway 73 via Spur 214 Extension
To Beaumont- Procter Street to State Highway 347
To Orange - Procter Street to State Highway 87 via Procter Street Extension.

This relocation is expected to reduce in-city operation costs since the proposed routes are much more direct than the present routes being used between Port Arthur and Houston, Beaumont and Orange.

Railroad Grade Separations

The transportation plan also includes suggestions for the development of grade separations for all main line tracks and major streets as recommended in the Major Street Plan. Four high priority grade separations are suggested for immediate consideration. They are:

1. and 2. The separation of State Highway 347 and the Kansas City Southern main line north of Spur 136 and the separation of Highway 347 and the Kansas City Southern spur to Port Neches.

3. The separation of State Highway 87 and the Kansas City Southern main line in the vicinity of Houston Avenue to be included in the relocation of 16th Street.

4. The separation of 7th Street and the Kansas City Southern main line approximately three blocks north of the passenger depot.

Air Transportation

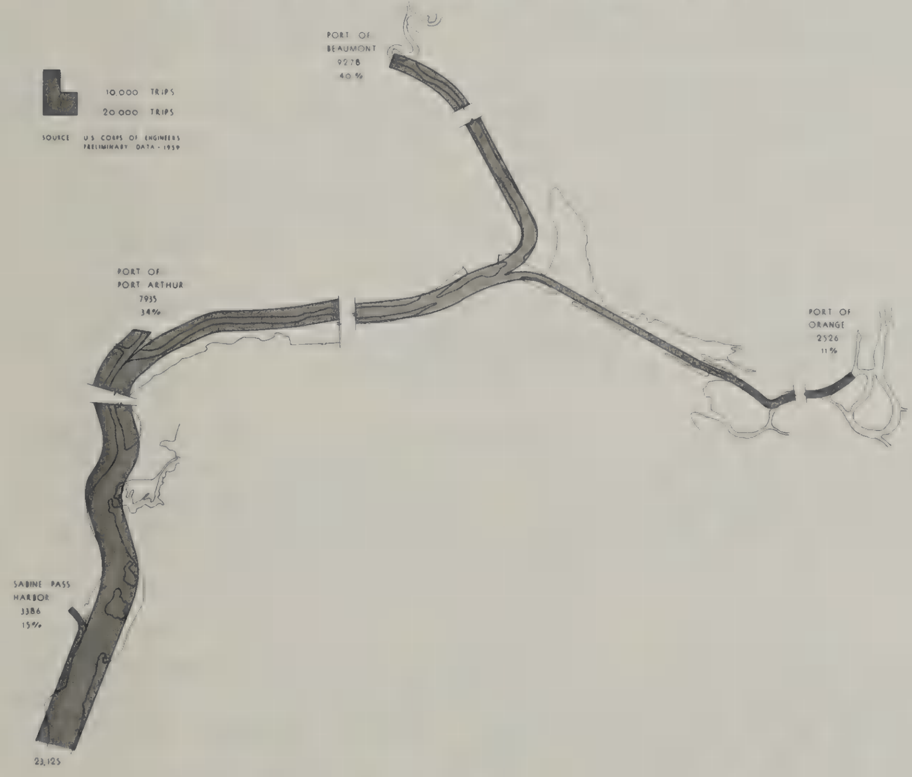
It is estimated that the runway facilities at the Jefferson County Airport will be adequate for at least five years. If necessary, the main runway can be extended from its present 5,750 foot length to 7,500 feet. Additional "clear-zone" property will need to be acquired if this extension is made.

As the population of the Port Arthur and Beaumont Urban Areas increase, it will be necessary to provide larger terminal space. However, the present terminal facilities can accommodate a fourth airline. The baggage and freight facilities appear to be adequate.

Existing Port Development

The Port of Port Arthur is located at the junction of the Sabine-Neches Waterway and the Intracoastal Waterway approximately 12 nautical miles from the Gulf of Mexico. The following sketch shows the inbound traffic handled on the Sabine-Neches Waterway during 1959.

1959 INBOUND TRAFFIC
SABINE-NECHES WATERWAY



SOURCE U.S. CORPS OF ENGINEERS
PRELIMINARY DATA - 1959

The importance of the Port of Port Arthur is indicated by the fact that the port received in 1959, 7,935 vessels or 34 percent of the total inbound traffic on the waterway. These vessels include tankers, freighters, barges, etc.

Water transportation is very closely related to other elements of the city structure. A water terminal requires interchange with other modes of transportation and cannot be considered as an isolated transportation problem. Access to water terminal facilities by rail and highway is especially important and must be coordinated in an over-all transportation plan.

Waterfront Development

The existing and proposed waterfront development for the Port of Port Arthur is shown on Plate 17. Although the Kansas City Southern owns the majority of the land in the port area, the Gulf Oil Corporation and Texaco, Incorporated, own large areas also. The Gulf Oil Corporation occupies the entire eastern side of the Taylor's Bayou Turning Basin. This turning basin has approximately 4,300 feet of dock area which is contiguous to the Gulf Refinery.

Texaco maintains its shipping and packaging facilities on what is known as "Texaco Island". In addition, Texaco has two large warehouses adjoining Slip Number 3. These warehouses contain over 200,000 square feet of area.

The Great Lakes Carbon Company has 1,800 linear feet of dock space in the area leased from the Kansas City Southern Railroad. Over 137,000 square feet of storage area is contained in two warehouses adjacent to this property on the east side of the West Turning Basin.

The Warren Petroleum Company also leases property from the Kansas City Southern Railroad. This area is located at the eastern end of Slip Number 1.

The Kansas City Southern Railroad operates a warehouse adjacent to Slip Number 2 which provides over 103,000 square feet of storage area. A large grain elevator and storage tanks with a 3,500,000 bushel capacity are also operated by the Kansas City Southern Railroad.

Another major industry located in the port area is on the west side of the West Turning Basin. This is United States Steel Products Company which is a division of United States Steel Corporation. Their assembly plant has in excess of 90,000 square feet of area.

The Jones-Laughlin Steel Company is also located on the west side of the Taylor's Bayou Turning Basin. Their assembly plant has over 40,000 square feet of area.

For expansion area, the existing port has available both sides of Slip Number 1 and the west side of Slip Number 2. These two slips provide over 5,000 feet of dock space. Ground space adjoining these slips is also available for construction of approximately 280,000 square feet of warehouse facilities.

Proposed Port Development

Basic Requirements

The basic characteristics of a good port remain virtually unchanged today from a century ago. They must be convenient points of transfer between land and water, with facilities adequate to accomplish the transfer of cargoes, and ample population to produce and consume the goods that are shipped. With respect to manpower and methods and speed of handling cargoes, ports have changed materially.

Location

Plate 18 shows a generalized development plan for a possible future public port and adjoining industrial district. This port area is located on the old "ship channel", in the extreme southeastern corner of the City of Port Arthur. Its location with respect to the Port Arthur Urban Area is shown on Plate 16. It should be emphasized that the development shown is schematic only and further study would be required before a definite plan of development could be designed.

Transportation

If a port is to prosper, it must be located in close proximity to water, rail, and highway transportation. The location of the proposed port satisfies these basic requirements as follows:

Water -- It is located on the Intracoastal Waterway near the mouth of the Neches River approximately 23 miles from the Gulf of Mexico. The waterway has a depth of 36 feet which allows the passage of almost every freighter or tanker in the world today.

Rail -- The main spur of the Kansas City Southern Railroad crosses State Highway 87 to the north of the proposed port area and presently serves Burton Shipbuilding Company to the west of this area.

Highway- Excellent access is provided to major highways as the port area is located immediately south of the intersection of State Highways 87 and 73. Highway 87 provides routes to the south and east, Highway 73 serves areas to the west and connects with Interstate 10 at Winnie, Texas, some 21 miles away.

It should be emphasized that before any additional planning is undertaken as a result of this proposal, a study should be made to determine the economic feasibility of the proposed port. A study of this type would involve considerable investigation concerning trade and market areas, economic trends, possible commodities to be handled, rates and tariffs, all of which is beyond the scope of the current planning program.

At the present time there are three factors to be considered in the establishment of a municipally-operated port in Port Arthur. These are:

A. When the City of Port Arthur acquired the land surrounding the old channel from the United States Government, the Corps of Engineers retained spoil dumping privileges in the old channel. The channel was to be used for dumping materials obtained from the periodic hopper dredging of the Intracoastal Waterway east of the Pleasure Island Bridge.

   As a permanent solution to the problem of a suitable site for dumping the dredged material, it is suggested that consideration be given to extending the existing revetment along the south side of Pleasure Island in an easterly and westerly direction and filling in behind with the dredged material. This process would result in the gradual enlargement of the Island, thus increasing its future value to the city for recreational and other purposes.

B. The proposed hurricane protection system presented by the Corps of Engineers to the citizens of the Port Arthur Urban Area does not provide protection for the area suggested as a future port. These plans indicate the protection levee to be located along the northern bank of the Intracoastal Waterway as far east as the intersection of the north bank of the old channel. At this point the levee is to be built perpendicular to the waterway generally as far north as State Highway 87. It then continues in an easterly direction along the north side of Highway 87 protecting the area occupied by the Atlantic Refinery.

   Since the hurricane protection report has progressed no further than the departmental stage in the Galveston District of the Corps of Engineers, the adjustment in the location of the levee to protect the port and the valuable industrial acreage could probably be achieved without involving a major revision in the plan.

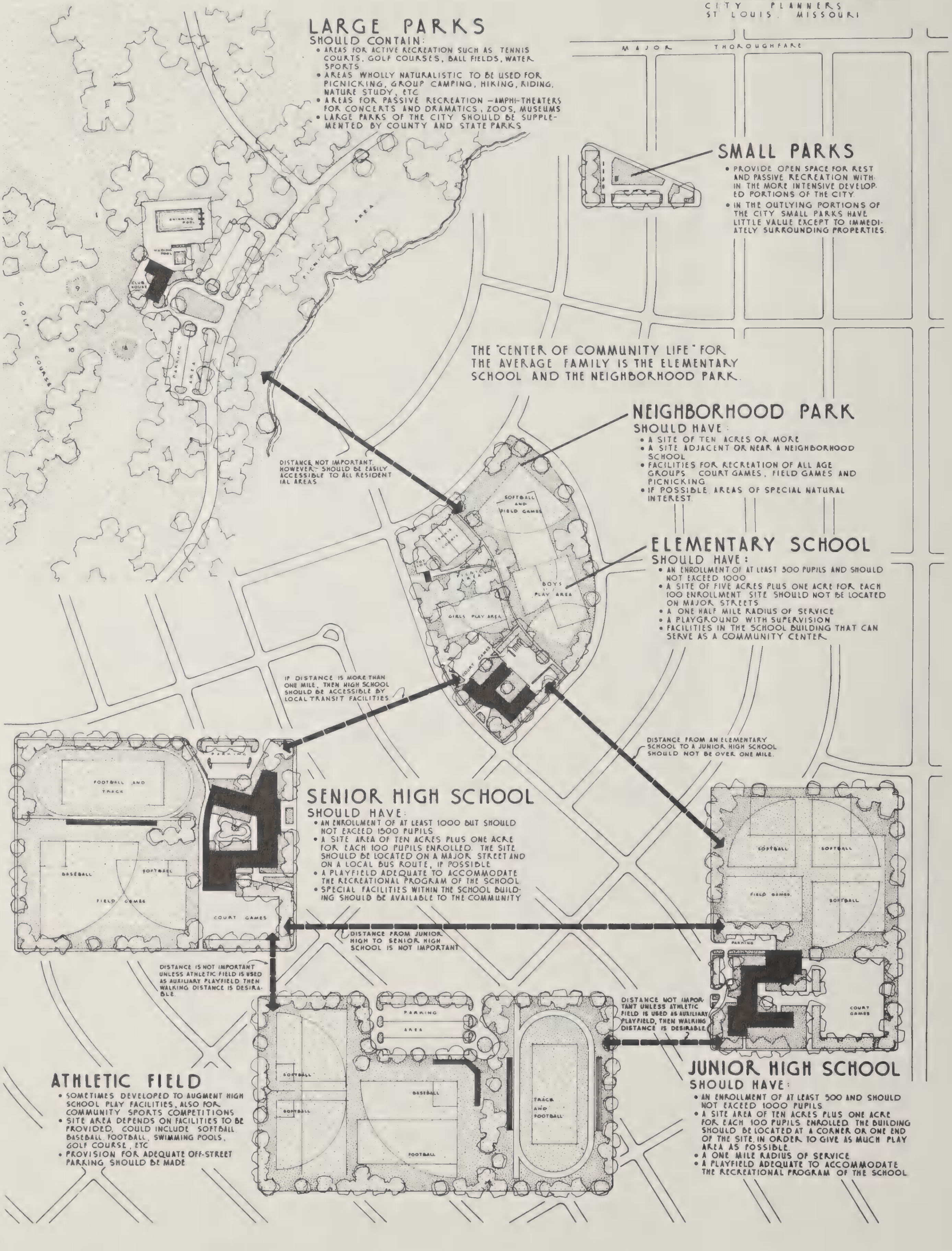
C. The Port Arthur Boat Club has been granted a three-year lease on the property immediately south of the old channel. This took place in December, 1959. While this location undoubtedly meets the requirements for the activities of the Boat Club, the area is better suited for the proposed port site and industrial acreage. As the recreational development possibilities of Pleasure Island seem unlimited, it would appear logical for the Boat Club to relocate its facilities to the Island as a permanent installation. If the two bridges proposed in the Major Street Plan were constructed, access to Pleasure Pier would be greatly improved.

These then are the problems confronting a move by the City of Port Arthur to establish a municipally-operated port. None of these problems seems to be insurmountable. However, it must be pointed out again that much time and expense can be avoided if an economic feasibility study is undertaken prior to any additional planning beyond the scope of this report.

GENERAL STANDARDS FOR RECREATION FACILITIES

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS
ST LOUIS, MISSOURI



LARGE PARKS

SHOULD CONTAIN:

- AREAS FOR ACTIVE RECREATION SUCH AS TENNIS COURTS, GOLF COURSES, BALL FIELDS, WATER SPORTS
- AREAS WHOLLY NATURALISTIC TO BE USED FOR PICNICKING, GROUP CAMPING, HIKING, RIDING, NATURE STUDY, ETC
- AREAS FOR PASSIVE RECREATION – AMPHI-THEATERS FOR CONCERTS AND DRAMATICS, ZOOS, MUSEUMS
- LARGE PARKS OF THE CITY SHOULD BE SUPPLEMENTED BY COUNTY AND STATE PARKS

SMALL PARKS

- PROVIDE OPEN SPACE FOR REST AND PASSIVE RECREATION WITHIN THE MORE INTENSIVE DEVELOPED PORTIONS OF THE CITY.
- IN THE OUTLYING PORTIONS OF THE CITY SMALL PARKS HAVE LITTLE VALUE EXCEPT TO IMMEDIATELY SURROUNDING PROPERTIES.

THE "CENTER OF COMMUNITY LIFE" FOR THE AVERAGE FAMILY IS THE ELEMENTARY SCHOOL AND THE NEIGHBORHOOD PARK.

DISTANCE NOT IMPORTANT. HOWEVER, SHOULD BE EASILY ACCESSIBLE TO ALL RESIDENTIAL AREAS

NEIGHBORHOOD PARK

SHOULD HAVE:

- A SITE OF TEN ACRES OR MORE
- A SITE ADJACENT OR NEAR A NEIGHBORHOOD SCHOOL
- FACILITIES FOR RECREATION OF ALL AGE GROUPS COURT GAMES, FIELD GAMES AND PICNICKING
- IF POSSIBLE AREAS OF SPECIAL NATURAL INTEREST

ELEMENTARY SCHOOL

SHOULD HAVE:

- AN ENROLLMENT OF AT LEAST 500 PUPILS AND SHOULD NOT EXCEED 1000
- A SITE OF FIVE ACRES PLUS ONE ACRE FOR EACH 100 ENROLLMENT SITE SHOULD NOT BE LOCATED ON MAJOR STREETS
- A ONE HALF MILE RADIUS OF SERVICE
- A PLAYGROUND WITH SUPERVISION
- FACILITIES IN THE SCHOOL BUILDING THAT CAN SERVE AS A COMMUNITY CENTER

IF DISTANCE IS MORE THAN ONE MILE, THEN HIGH SCHOOL SHOULD BE ACCESSIBLE BY LOCAL TRANSIT FACILITIES.

DISTANCE FROM AN ELEMENTARY SCHOOL TO A JUNIOR HIGH SCHOOL SHOULD NOT BE OVER ONE MILE.

SENIOR HIGH SCHOOL

SHOULD HAVE:

- AN ENROLLMENT OF AT LEAST 1000 BUT SHOULD NOT EXCEED 1500 PUPILS
- A SITE AREA OF TEN ACRES PLUS ONE ACRE FOR EACH 100 PUPILS ENROLLED. THE SITE SHOULD BE LOCATED ON A MAJOR STREET AND ON A LOCAL BUS ROUTE, IF POSSIBLE
- A PLAYFIELD ADEQUATE TO ACCOMMODATE THE RECREATIONAL PROGRAM OF THE SCHOOL
- SPECIAL FACILITIES WITHIN THE SCHOOL BUILDING SHOULD BE AVAILABLE TO THE COMMUNITY

DISTANCE FROM JUNIOR HIGH TO SENIOR HIGH SCHOOL IS NOT IMPORTANT

DISTANCE IS NOT IMPORTANT UNLESS ATHLETIC FIELD IS USED AS AUXILIARY PLAYFIELD THEN WALKING DISTANCE IS DESIRABLE.

DISTANCE NOT IMPORTANT UNLESS ATHLETIC FIELD IS USED AS AUXILIARY PLAYFIELD, THEN WALKING DISTANCE IS DESIRABLE.

ATHLETIC FIELD

- SOMETIMES DEVELOPED TO AUGMENT HIGH SCHOOL PLAY FACILITIES, ALSO FOR COMMUNITY SPORTS COMPETITIONS
- SITE AREA DEPENDS ON FACILITIES TO BE PROVIDED. COULD INCLUDE SOFTBALL, BASEBALL, FOOTBALL, SWIMMING POOLS, GOLF COURSE, ETC
- PROVISION FOR ADEQUATE OFF-STREET PARKING SHOULD BE MADE.

JUNIOR HIGH SCHOOL

SHOULD HAVE:

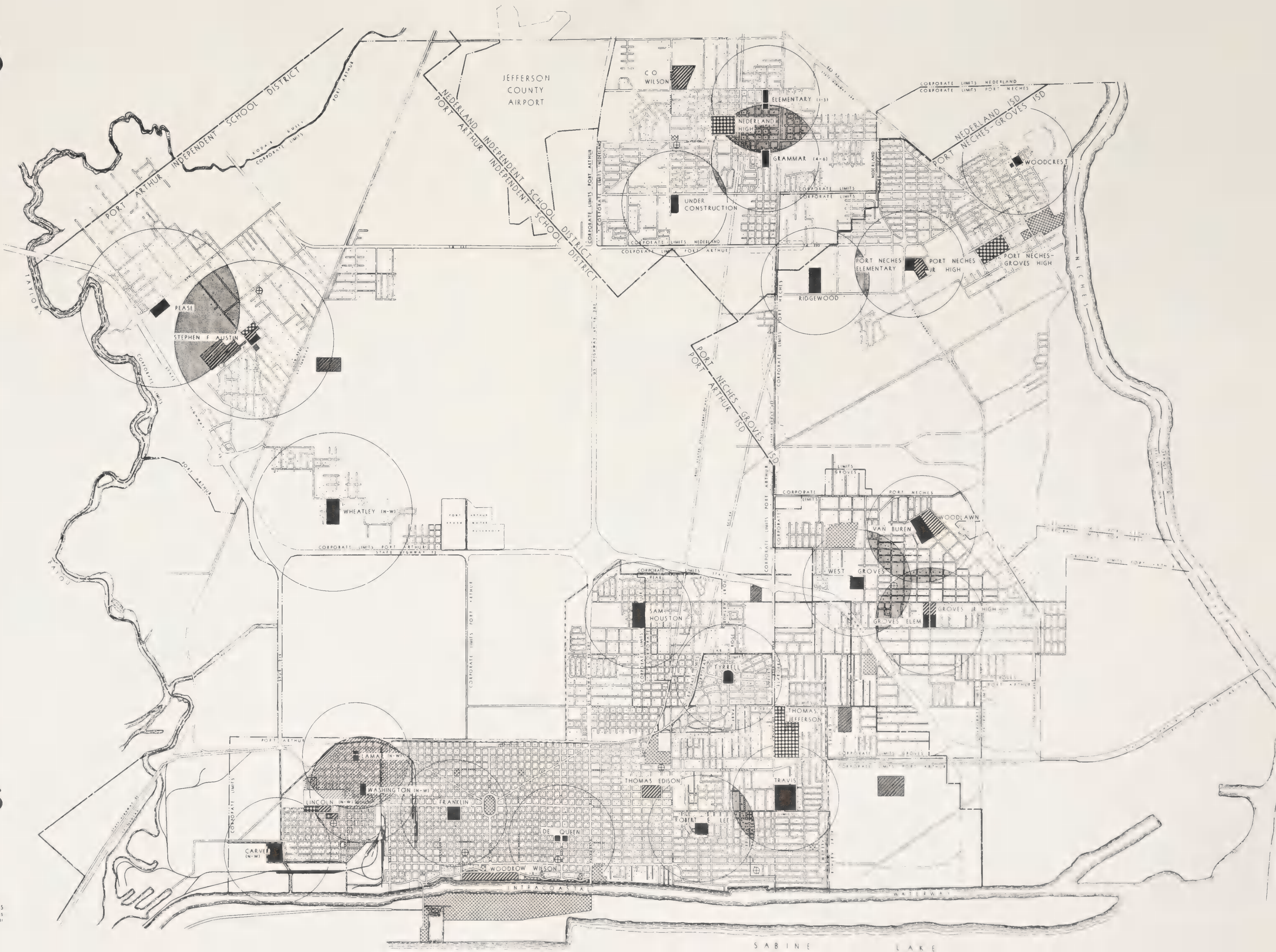
- AN ENROLLMENT OF AT LEAST 500 AND SHOULD NOT EXCEED 1000 PUPILS
- A SITE AREA OF TEN ACRES PLUS ONE ACRE FOR EACH 100 PUPILS ENROLLED. THE BUILDING SHOULD BE LOCATED AT A CORNER OR ONE END OF THE SITE, IN ORDER TO GIVE AS MUCH PLAY AREA AS POSSIBLE.
- A ONE MILE RADIUS OF SERVICE
- A PLAYFIELD ADEQUATE TO ACCOMMODATE THE RECREATIONAL PROGRAM OF THE SCHOOL

PLATE 19

EXISTING SCHOOLS AND PARKS

LEGEND

- ■ ELEMENTARY SCHOOL
- ▨ JUNIOR HIGH SCHOOL
- ▦ SENIOR HIGH SCHOOL
- ▩ PARK AREAS
- ⊕ PAROCHIAL SCHOOL
- (N-W) NON-WHITE SCHOOL
- ⌒ 1/2 OR 3/4 MILE AREA OF SERVICE FOR ELEMENTARY SCHOOLS
- ● DUPLICATION OF SERVICE AREAS FOR WHITE ELEMENTARY SCHOOLS
- ▨ DUPLICATION OF SERVICE AREAS FOR NON WHITE ELEMENTARY SCHOOLS
- —-— SCHOOL DISTRICT BOUNDARY LINE
- EACH DOT REPRESENTS 20 PERSONS - 1960
- ▨ UNDEVELOPED SCHOOL SITE



PORT ARTHUR, TEXAS AND ENVIRONS

PLATE 20

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

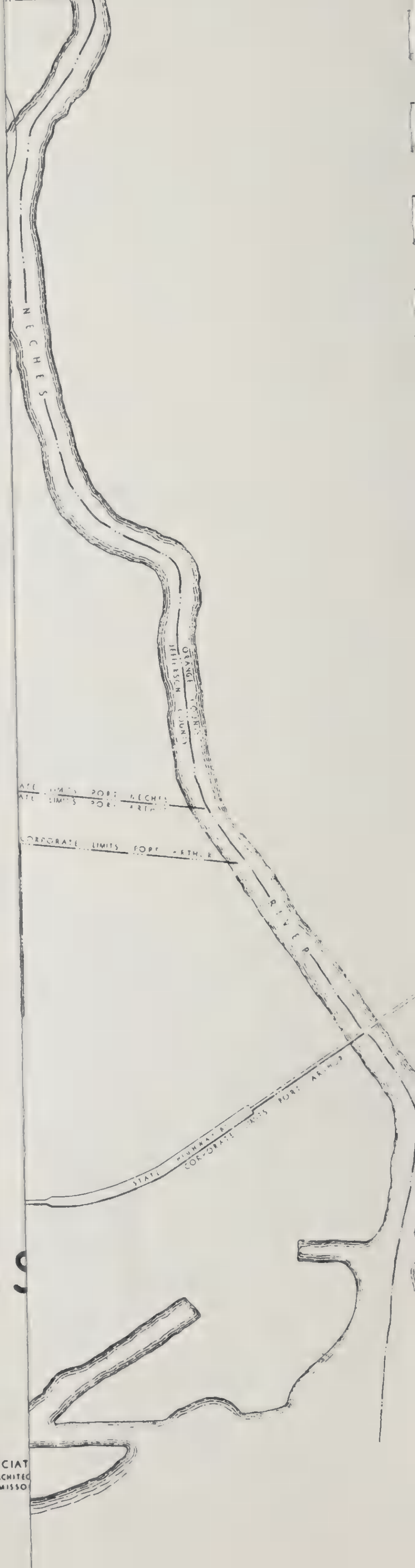
JANUARY 1961

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS CIVIL ENGINEERS LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

EXISTING SCHOOLS AND PARKS

LEGEND

- ■ ELEMENTARY SCHOOL
- ▨ JUNIOR HIGH SCHOOL
- ▩ SENIOR HIGH SCHOOL
- ▦ PARK AREAS
- ⊕ PAROCHIAL SCHOOL
- (N-W) NON-WHITE SCHOOL
- — 1/2 OR 3/4 MILE AREA OF SERVICE FOR ELEMENTARY SCHOOLS
- ● DUPLICATION OF SERVICE AREAS FOR WHITE ELEMENTARY SCHOOLS
- ▨ DUPLICATION OF SERVICE AREAS FOR NON WHITE ELEMENTARY SCHOOLS
- —·— SCHOOL DISTRICT BOUNDARY LINE
- EACH DOT REPRESENTS 20 PERSONS - 1960
- ▨ UNDEVELOPED SCHOOL SITE


NECHES
ORANGE COUNTY
JEFFERSON COUNTY
CORPORATE LIMITS PORT NECHES
CORPORATE LIMITS PORT ARTHUR
CORPORATE LIMITS PORT ARTHUR
RIVER
STATE HIGHWAY 87
CORPORATE LIMITS PORT ARTHUR

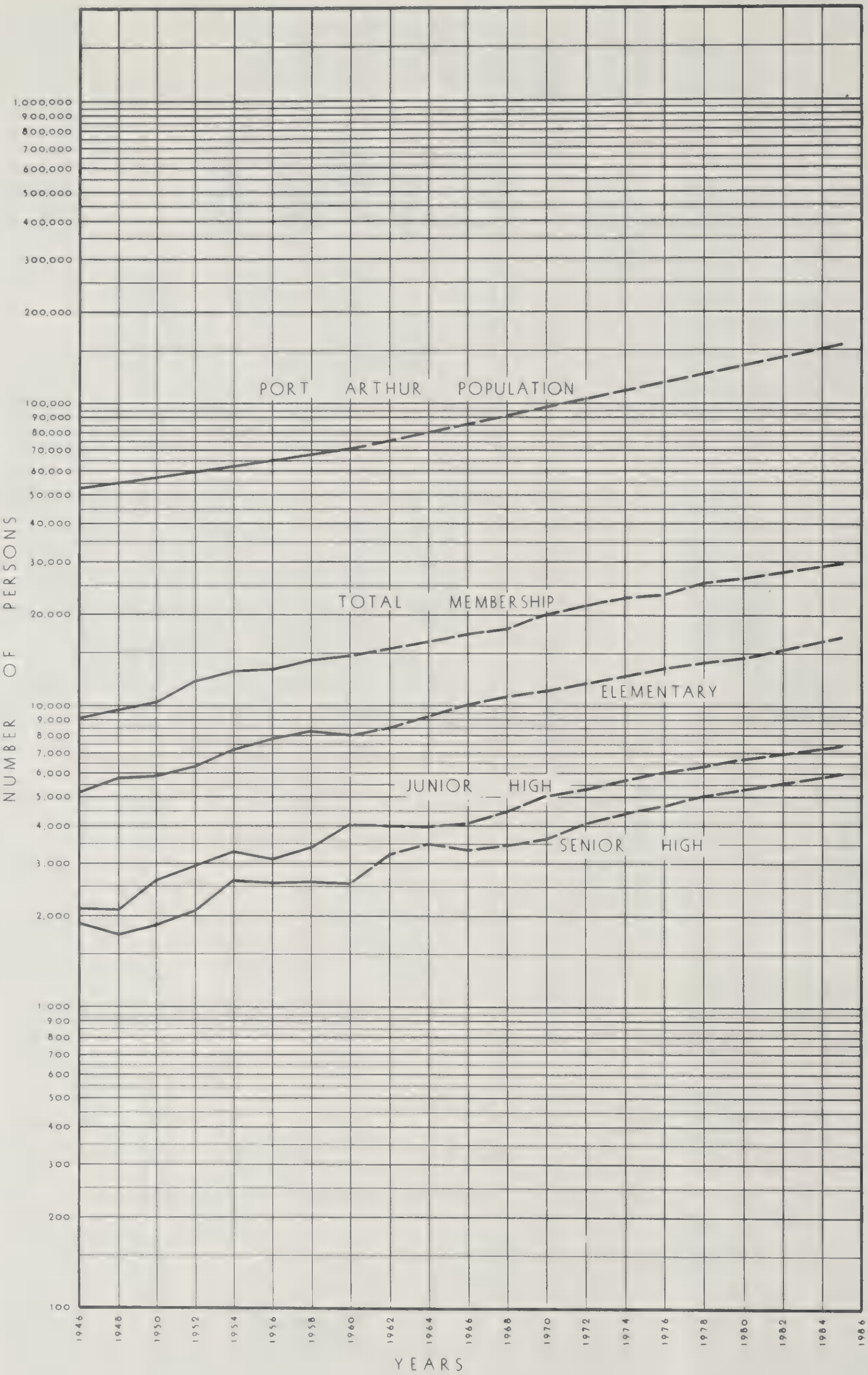
PORT ARTHUR, TEXAS AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

JANUARY, 1961

HARLAND BARTHOLOMEW AND ASSOCIAT
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITEC
SAINT LOUIS MISSO

PLATE 20



PAST AND ESTIMATED FUTURE SCHOOL MEMBERSHIPS

PORT ARTHUR INDEPENDENT SCHOOL DISTRICT

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS CIVIL ENGINEERS LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

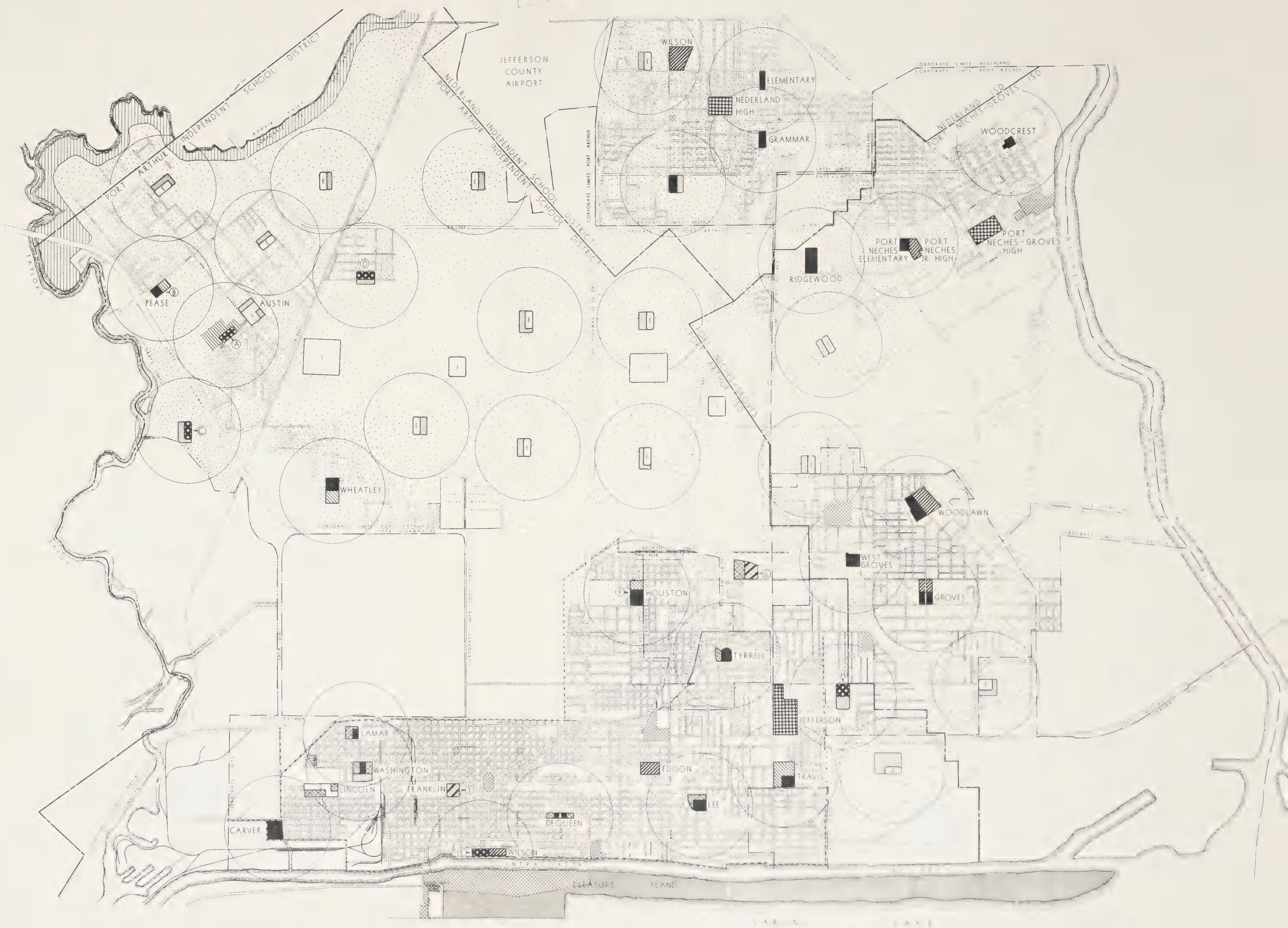
PLATE 21

PROPOSED SCHOOLS AND PARKS

LEGEND

SCHOOL	EXISTING TO REMAIN	INTERMEDIATE PLAN	ULTIMATE PLAN
ELEMENTARY	■	▩	E
JUNIOR HIGH	▨	▨	J
SENIOR HIGH	▩		S

Ⓐ INTERMEDIATE SCHOOL SITE DESIGNATION
— 1/2 MILE AREA OF SERVICE FOR ELEMENTARY SCHOOLS
▩ EXISTING SCHOOL SITE TO BE EXPANDED
▩ EXISTING PARKS
▧ EXISTING SCHOOL ACREAGE TO BE USED AS PARK
░ PROPOSED NEW NEIGHBORHOOD PARK
▓ PROPOSED LARGE PARK
▥ PROPOSED PUBLIC PRESERVE
• EACH DOT REPRESENTS 20 PERSONS - 1985



PORT ARTHUR, TEXAS AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS CIVIL ENGINEERS LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 22

PROPOSED SCHOOL AND PARKS

LEGEND

SCHOOL	EXISTING TO REMAIN	INTERMEDIATE PLAN	ULTIMATE PLAN
ELEMENTARY	■	▦	E
JUNIOR HIGH	▨	▨	J
SENIOR HIGH	▦		S

Ⓐ INTERMEDIATE SCHOOL SITE DESIGNATION

— 1/2 MILE AREA OF SERVICE FOR ELEMENTARY SCHOOLS

▦ EXISTING SCHOOL SITE TO BE EXPANDED

▦ EXISTING PARKS

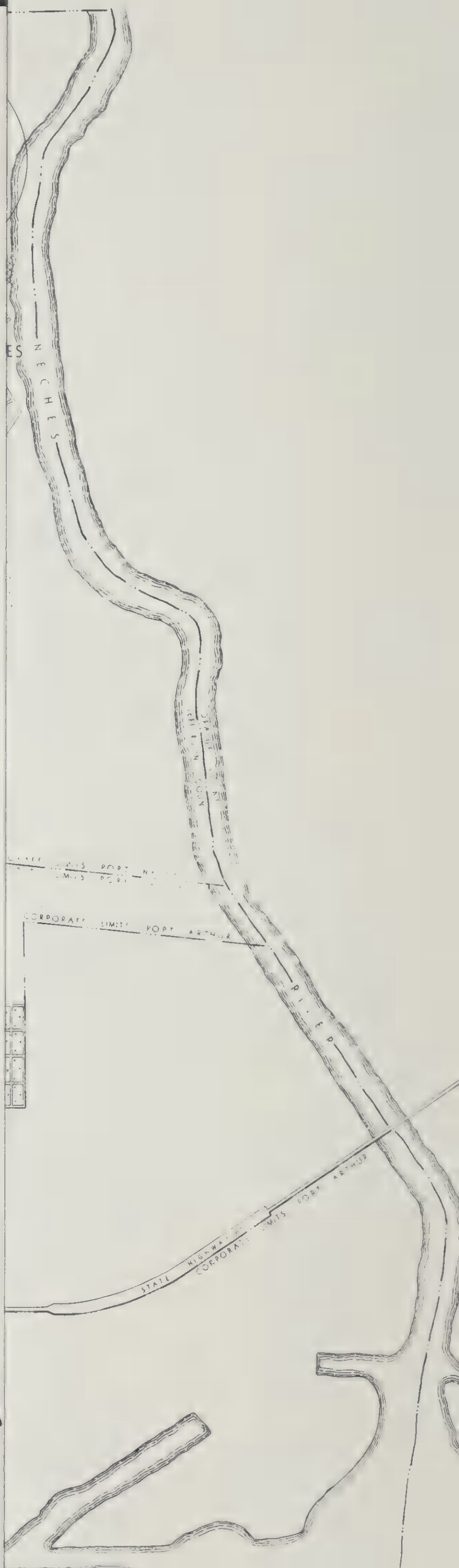
▨ EXISTING SCHOOL ACREAGE TO BE USED AS PARK

░ PROPOSED NEW NEIGHBORHOOD PARK

▓ PROPOSED LARGE PARK

▥ PROPOSED PUBLIC PRESERVE

· EACH DOT REPRESENTS 20 PERSONS – 1985



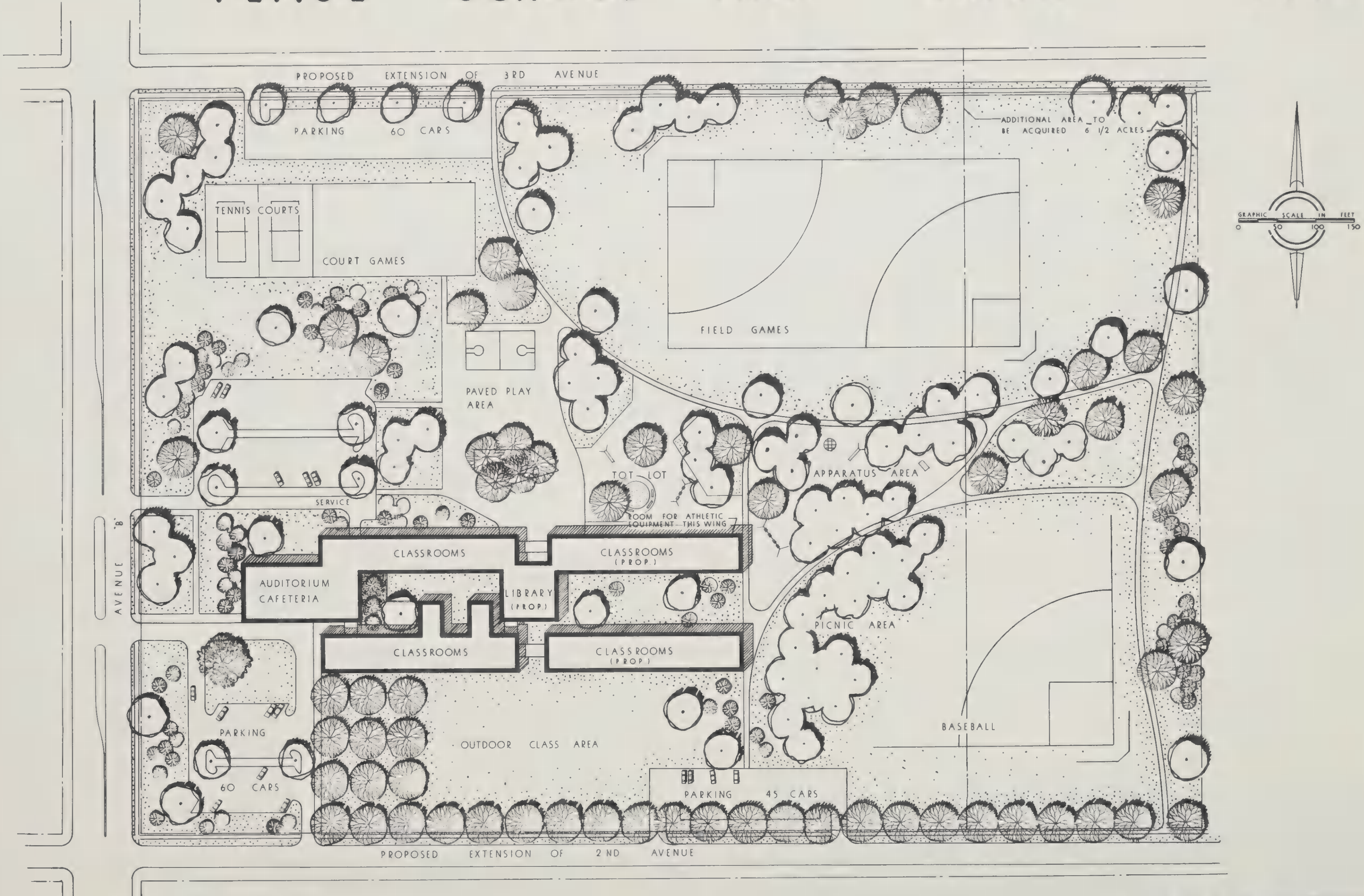
PORT ARTHUR, TEXA
AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSO
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE AR
SAINT LOUIS M

PLATE 22

GENERAL DEVELOPMENT PLAN
PEASE SCHOOL AND PARK SITE



CITY PLANNING & ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 23

SCHOOLS, PARKS AND RECREATION*

A fundamental requirement of a community is that it be a good place in which to live. Before a residential neighborhood can be thoroughly desirable, provision must be made for adequate educational and recreational facilities--these are community responsibilities.

Criteria for School and Park Planning

Recreation and school authorities, together with city planners, have generally agreed upon standards for the several types of facilities that should be provided in a modern school and recreational system. Plate 19 graphically shows these standards and the following is a summary discussion of them.

Elementary School

Each elementary school should serve a residential neighborhood with from 300 to 1000 pupils and should be centrally located to be within convenient walking or bicycle riding distance from most homes--normally one-half mile. In predominantly single-family neighborhoods, such a district would be about one mile square; in more densely populated areas, somewhat less than a square mile. In certain extremely low density districts, the service radius of an elementary school may have to be increased to three-fourths of a mile or more. Elementary schools should not be located on major thoroughfares in or adjacent to industrial areas.

The school building should be designed to serve as a community center and focus of interest for the entire neighborhood. The elementary school playground should be used during the summer, as well as during the school year, and should be a part of a community-wide organized recreational program.

Junior High School

A junior high school ideally serves an area within a radius of one mile. Since children attending junior high school are older and participate in more active group recreation, certain athletic facilities are desirable on school grounds. A site of at least ten acres plus an additional acre for each 100 students is desirable to accommodate the school and attendant facilities in addition to the minimum off-street parking requirements specified for an elementary school. If a number of children are brought to the school by buses, these off-street space requirements should be increased to accommodate these vehicles. The junior high school site also should be used throughout the entire year for recreational purposes.

---

*Preliminary Report, "Schools, Parks and Recreation", dated January, 1961, Harland Bartholomew and Associates.

Senior High School

Senior high school students are old enough to travel considerable distances on their own or in school buses. Reasonably good accessibility to public transportation and to major streets are two criteria used in determining location. The radius of service is not important in this case. High school grounds normally should contain a minimum of 20 acres in order to provide the facilities needed for athletics of various types, the off-street parking space and the creation of a campus-styled environment for a modern school plant. A high school should provide a minimum of one parking space for each eight seats in the main auditorium or three spaces for each classroom, whichever is greater.

Small Parks

Small parks containing only one or two acres or less can be valuable assets in the heavily populated sections of the city. In the outlying single-family districts, small parks primarily benefit only the surrounding property and their upkeep should be the responsibility of the property owners in the subdivision where they are located.

Neighborhood Parks

Neighborhood parks are among the most valuable elements of a recreational system. They should serve the same areas as an elementary school and, consequently, it is very desirable that they adjoin the school grounds and that the improvement of both areas be coordinated. This will afford better play facilities for the school children and, at the same time, will provide recreational opportunities that are of interest to the entire neighborhood. A combined area of 15 to 20 acres is desirable and if not combined, the neighborhood park should contain at least 10 acres. Combining the school and park areas will afford many economies in acquisition, development and maintenance.

Athletic Fields

Where possible these should adjoin the high school grounds or in some instances they can be located in a portion of a large park. Normally, such athletic fields, if fully developed with all types of facilities, should contain not less than 40 acres.

Large Parks

Large parks should normally comprise at least 100 acres and while they should be so distributed that they will be conveniently accessible to most of the urban population, they should be primarily selected because of their topography and physical advantages. Locations on lakes and rivers are especially desirable as are areas containing rugged topography and heavily wooded sections. While some of the parks might be improved with public golf courses and other facilities for active recreation, the majority of the area should be maintained in a naturalistic condition to afford adequate opportunities for picnicking, walking and other types of passive recreation. In larger cities, some of the areas might contain a zoo, museum, outdoor theatre and similar specialized recreational opportunities.

Miscellaneous

There are, of course, certain additional types of recreational areas, such as parkways, where the vehicular traffic is usually restricted to passenger vehicles and large outlying reservations equipped for overnight camping.

The long-established and generally recognized standard of one acre of park area for each 100 persons is still desirable and should be achieved whenever possible. It must be emphasized, however, that a substantial amount of this park area should be comprised of close-in facilities, including neighborhood parks, athletic fields and elementary school playgrounds.

Existing School and Park Facilities

The Port Arthur Independent School District is responsible for the operation of all public schools in the City of Port Arthur.

Plate 20 shows the location of all public and parochial schools in the Port Arthur Urban Area. The areas served by elementary schools are indicated by a one-half mile radius for areas with standard residential densities and by a three-fourths mile radius for areas with sparse residential development. Areas where there is duplication of service are shown for white and non-white elementary schools.

Data regarding the existing schools in the Port Arthur Independent School District is summarized in Table 10. The area of the site, date of construction of the original building and major additions, number of classrooms, special rooms, grades taught, present membership and existing capacity are shown.

School Sites

In Table 11, the present size of existing sites and present pupil capacity is compiled and total acreage needed is shown, based on the previously discussed standards. The last column indicates the deficit or overage for each school site. At the present time, six schools have what is considered to be an adequate site, two schools have a deficit of less than five acres and eight schools have a deficit of from five to 10 acres.

Capacity and Enrollment

The capacity and enrollment of the present schools are compared in Table 12. Capacities shown are practical as determined by the Port Arthur Independent School District. For elementary schools these range from a low of 21 students per classroom at Franklin School to a high of 51 students per classroom at Lincoln School. (This is explained by the fact that Lincoln has many temporary rooms which the School District does not consider adequate; these are not included in the calculations.)

Past Trends in Membership

Past trends in membership are shown in Table 13 and on Plate 21. Total membership has increased by 5,189 students in the past 20 years from 9,647 in 1940-41 to 14,836 in 1960-61. The resulting 53 percent increase is greater than the rate of population gain for the city over the same period. The postwar baby boom began to be evidenced in the early and middle 1950's in the elementary and junior high schools. High school memberships have also increased in the past several years primarily because of the increased desire and need for a high school education.

Estimated Future Memberships

Estimates of future school memberships are based on two groups of known statistics. First, children born in the city during the past years can be expected to attend schools in the future. Secondly, most of the children living in Port Arthur and now in school can be expected to remain in the system during the next few years. These and other related data were used to estimate future memberships.

Births in 1950 were 199 percent of the 1940 births compared to an increase of 124 percent in population over the same period. In 1959 births were 252 percent of 1940, while the population increased 152 percent.

Since 1947 the birth rate has steadily increased from 30 births per 1000 persons until the high for that period (40.6) was reached in 1959. All of this data is important in assessing future memberships. The slight decrease of births in 1955 can be expected to be reflected in a slight decrease in first grade students in the 1961-62 school year. (See Table 14.)

The second group of known statistics on which a school projection is made is the "survival rate" or the number of students progressing from one grade to the next succeeding grade the following year. Survival rates for all grades vary from year to year. However, during the past five years, survival rates have remained fairly consistent in the elementary and junior high grades. Senior high school survival rates have been consistently increasing as a result of the desire and need for a high school education increasing. It is expected that this trend will continue for a few years, eventually leveling off around 1965.

Table 15 shows the estimated future school memberships based on actual births, projected births, actual survival rates, and projected survival rates. The survival rates were applied against the resident births reporting for the first grade in columns three and four, Table 15, and each year were carried forward through all grades using the survival percentages. All elementary, junior high and senior high grades were grouped and totaled for each year to the year 1966. This information is shown under "Projected School Memberships by Grades" in Table 15.

It is estimated that by 1966, total elementary membership will be 10,068, an increase of 2,069 pupils. Junior high school membership will increase slightly to 4,102. Senior high memberships will total 3,347, or an increase of 677 students.

Projections of total school memberships for the Port Arthur Independent School District to 1985 are also shown in Table 15 and Plate 21. By 1985, it is expected that elementary school memberships will total more than 16,000 students, junior high school memberships in excess of 7,400 and senior high school memberships more than 5,900. This means that by 1985 there will be a demand for 541 elementary classrooms or 27 standard elementary schools, 247 junior high school classrooms or eight schools of standard size, and 199 senior high classrooms or five standard senior high schools.

Distribution of Membership

While it is important to have a knowledge of future school memberships for the next few years, school plans for that period should also be based on long-range school needs in keeping with the timing of other phases of the Comprehensive Plan. For that reason it is necessary to estimate future memberships to 1985, and where these children will probably be living in the city to establish approximate locations of future schools. By applying estimates of future school membership to anticipated future population, it is possible to determine the ratio of school children of various age groups to the total population. Such estimates have been made in various sections of the city to determine that a school of standard enrollment can be supported by that area.

It should be noted that estimates to 1966 are based on known conditions and statistics, and are dependable representations of school requirements for that period. Long-range estimates, however, may be affected by unpredictable economic conditions in the future. This requires that they be kept under constant scrutiny, and be revised at the same time as population studies are checked.

Existing Recreation Facilities

If Pleasure Island did not exist for the recreational activity of the people of Port Arthur, the city would be extremely unfortunate. The only large area on the mainland used for park purposes is Gilham Circle where the facilities are very limited. Pioneer Park is used in conjunction with Bishop Byrne High School and St. James Elementary School. Play areas for field games are very limited. The space for field games is available at some of the larger school sites, but the areas are not defined. The City of Port Arthur operates one softball diamond, five Little League parks, one Pony League park, two swimming pools, two wading pools, one picnic area and one shelter.

A summer recreational program is carried on by the City Recreation Department which functions only during the summer months. The program is maintained in conjunction with the Port Arthur Independent School District in that the program is operated on school facilities entirely and the playground supervisors are employed by the School District. The director of the recreation program is a summer employee of the City of Port Arthur. The City furnishes supplies, equipment and employs assistant playground supervisors.

Proposed School Plan

The proposed school and park plan presented on Plate 22 shows the general location of all new schools in the Port Arthur Urban Area. The schools have been proposed in locations where sufficient population increases can be expected to warrant new schools. The same standards of school location apply to these schools as mentioned in an earlier section of this report. The proposed school plan does not distinguish between future white and non-white schools.

Because of the special nature of school needs, the school program has been divided into two parts--a six-year program and an ultimate program covering the period 1966 to 1985.

Ultimate School Program

The ultimate school program for the Port Arthur Independent School District has been designed to accommodate the 29,587 students which are expected to be attending schools in 1985. As previously stated, the locations of new schools shown on Plate 22 are graphic and no attempt has been made to determine actual sites unless the site is now owned by the school district.

Elementary Schools

In order to accommodate the estimated future membership of 16,206 elementary students, it will be necessary to build 13 new elementary schools in Port Arthur. All of the existing schools will be retained although additions and modifications will be necessary. The plan also shows the expansion of presently inadequate sites, realizing that this expansion will be a costly and long-range undertaking since most of the existing schools are in highly developed areas of the city. However, this program of expansion must be carried out in order to provide adequate recreation facilities.

Junior and Senior High Schools

The proposed junior and senior high schools are also shown on Plate 22. By 1985, it is anticipated that there will be 7,410 junior high and 5,971 senior high students in the Port Arthur Independent School District. To meet this demand, 110 new junior high classrooms and 110 new senior high classrooms will be needed. To meet this anticipated demand, the proposed school plan suggests that three new junior high schools be constructed and two existing schools be converted to accommodate junior high students by 1985. The plan also suggests that two new senior high schools be constructed by 1985. It is also recommended that an existing combination junior-senior high school be converted to a senior high school.

Intermediate School Plan

During the next five years, the membership of the Port Arthur Independent School District is expected to increase to 17,517 students. In order to provide adequate facilities for this expected increase in membership, an intermediate school plan is proposed. The following is a discussion of the various proposals of the plan and are shown on Plate 22.

"A" A new elementary school is proposed on the existing site in the area to the south of the Stephen F. Austin School.

"B" It is proposed that eight additional classrooms be added to Pease Elementary School.

"C" A school site should be secured in the "Lakeside Park" area.

"D" An investigation should be made as to the advisability of providing temporary classrooms in the "Montrose" area.

"E"&"I" It is proposed that Wilson Junior High School be converted to accommodate those elementary students presently enrolled at Franklin. Present school district plans for the 1961-62 school year propose that Franklin become a non-white junior high school.

"F" Present population distribution warrants the location of a new elementary school in the vicinity of Houston and Tyrrell Elementary Schools. Since most of the area is already developed and acquisition of sufficient acreage would be extremely costly, it is recommended that eight to 10 classrooms be added to Houston Elementary School as an alternative.

"G" The construction of a junior high school is planned for the recently purchased site on 39th Street south of Highway 73 and west of State Highway 347.

"H" It is proposed that a new elementary school be constructed upon the existing site on 25th Street east of Thomas Jefferson High School.

Proposed Park Plan

Long-Range Plan

The proposed long-range park plan, shown on Plate 22, recommends 18 new neighborhood parks to be developed in conjunction with schools in Port Arthur. It also suggests the continued use of all existing park facilities and the continued development of Pleasure Island.

Neighborhood Parks. Following the recommended standards discussed previously for neighborhood parks, all of the proposed neighborhood parks are located adjacent to elementary schools. All of these neighborhood parks should have a full complement of recreational facilities, such as:

a. Baseball, softball and football fields,
b. Courts for tennis, volleyball, basketball and other court games,
c. Areas for pre-school children (tot lot),
d. Limited picnic facilities,
e. Playground apparatus, such as swings, bars and slides,
f. Adequate athletic equipment,
g. Wading pool, and
h. Restrooms and shelter area.

In addition, a supervisor or director is necessary for community social activities including interest classes, craft programs and hobby guidance for all age groups.

School buildings proposed in conjunction with the park plan should be designed to serve the joint program by providing office space that can be used by the recreation program director and storage space for athletic equipment. Auditoriums, gymnasiums and cafeterias should be used for community activities and indoor sports during inclement weather.

Public Preserve. One large public preserve is planned for the City of Port Arthur. Although it should be acquired primarily to prevent residential development along Taylor's Bayou, it can be put to excellent use with a minimum of expense. Boating access to the Intracoastal Waterway and Sabine Lake would be limited to those craft small enough to pass beneath the railroad and highway bridges at State Highway 87. Development of this preserve area could include a marina or launching facilities, picnic grounds, and a shelter area. The area shown on Plate 22 as a public preserve contains approximately 470 acres.

Pleasure Island. In 1957, the Pleasure Island Development Board was formed to promote and regulate the present and future facilities on Pleasure Island. The organization has control of all of the Island east of Pleasure Pier Boulevard aggregating 1,072 acres.

The development of Pleasure Island offers unlimited possibilities. The area of that part of the Island which is to be developed for recreational purposes is the only controlling factor in the development. However, if the area east of the existing revetment and south of the existing land can be built-up, it will increase the area of the Island and thereby increase its value for recreational purposes.

Most of the area immediately east of Pleasure Pier Boulevard is adequately serviced by roads. However, prior to any additional development of the eastern section of the Island, definite plans should be made for the location of the Island road as proposed in the Major Street Plan. This will insure that there will be no conflicting projects in the future. No additional large parks were proposed in the park plan because of the potential of Pleasure Island and the close proximity of the Gulf of Mexico and the recreational possibilities of the beaches.

The recognized standard relating park land to population is one acre per 100 persons. This standard can be realized in Port Arthur by 1985 if the following program is carried out:

1. Develop the 1,072 acres of land under the jurisdiction of the Pleasure Island Development Board for recreational use.

2. Provide 18 neighborhood parks containing not less than 10 acres each in conjunction with new elementary schools.

3. Acquire and develop Bayou Park Land Preserve to contain 470 acres.

Pease School and Park. Shown on Plate 23 is a general development plan for Pease Elementary School and the adjoining property as a neighborhood park. Additional parking is proposed near the auditorium to be used by staff during the day and for neighborhood activities in the evening. Parking is also provided near the court games area and the picnic area. Although the site is presently barren of tree growth, a tree planting program should be undertaken according to a plan for the ultimate development of the site.

Table 10

EXISTING SCHOOL FACILITIES
Port Arthur Independent School District
Port Arthur, Texas

Schools	Area of Site in Acres	Year Built	Major Additions		No. of Class-rooms^1	Special Rooms	Grades Taught	Pupil^1 Capacity	Pupil* Membershi
			Year	Facilities					
High Schools									
Stephen F. Austin	14.0	1929	1950	gym, band room, cafeteria H.E., auditorium, office, clinic, shop, 11 classrooms	29	music, library, H.E., band, gym, shop, cafeteria, 4 temporary	K-12	840	K-108 1-6-430 7-9-355 10-12-205
Thomas Jefferson	68.0	1959	-	-	73	music, art, 3 H.E., 4 industrial arts, band, library, gym, auditorium, cafeteria, 2 study, 2 P.E., drama, print shop	10-12	2,190	1,765
Lincoln (N-W)	15.0	1919	1952	gym, science, H.E., swimming pool, shop	38	3 H.E., 3 science labs, typing, mechanical drawing, 2 shops, band, gym, cafeteria, 17 temporary	7-12	1,140	7-9-1258 10-12-695 Sp.Ed.14
Jr. High Schools									
Thomas Edison	14.5	1929	1953	science labs	48	music, art, 2 H.E., 3 industrial arts, band, library, 3 gyms, cafeteria, auditorium	6-9	1,440	1,281
Woodrow Wilson	23.5	1904	1956	band, P.E. dressing rooms	62	4 music, 4 art, 3 H.E., 3 industrial arts, band, library, 2 gyms, 3 Sp.Ed., cafeteria, auditorium, swimming pool	7-9	1,860	1,451 Sp.Ed.44
Elementary Schools									
Geo. Washington Carver (N-W)	15.0	1952	1957	library, all purpose, cafeteria, 13 classrooms	26	special education, 4 temporary	K-6	750	875 K-115
DeQueen	4.5	1914	1951	cafeteria, kitchen, library, office, conference, 19 classrooms	26	music, library, auditorium, gym cafeteria, 1 temporary	K-6	720	769 K-142
Franklin	10.2	1916	-	-	30	music, 2 art, 2 shops, visual ed., auditorium, 2 gyms, cafeteria, H.E., library, swimming pool, Sp.Ed.	K-6	840	643 K-97 Sp.Ed.21
Sam Houston	20.0	1953	1954	8 classrooms	26	music, library, cafeteria	K-5	720	644 K-147
Lamar (N-W)	3.5	1923	1953	kitchen, all purpose, 4 classrooms	17	cafeteria, 13 temporary classrooms	K-6	450	704 Sp.Ed.11 K-125
Robert E. Lee	7.0	1929	1949	auditorium, visual aid, cafeteria, music, gym, dressing rooms, 12 classrooms	27	music, visual aid, auditorium, cafeteria, gym, library, temporary room	K-6	750	668 K-108
Pease	25.0	1959	-	-	11	music, cafeteria	K-6	300	242 K-70
William B. Travis	34.0	1952	1957	library, sp.ed., multi-purpose, 8 classrooms	26	music, Sp.Ed., library, gym, cafeteria,	K-6	720	592 K-102 Sp.Ed.19
Tyrrell	7.5	1925	1950	gym, cafeteria, auditorium, visual aid, music, 6 classrooms	26	music, visual aid, auditorium, gym, cafeteria, temporary	K-5	720	875 K-185
Booker T. Washington (N-W)	4.1	1960	-	-	31	cafeteria, gym, library, Sp.Ed.	K-6	870	835 K-138
Phyllis Wheatley (N-W)	20.0	1952	1958	multi-purpose, clinic, office, teachers' room, 10 classrooms	17	cafeteria, gym	K-6	450	484 K-177

Undeveloped sites total approximately 130 acres at six locations.
*October 17, 1960 K-Kindergarten and Sp.Ed. - Special Education are in addition to membership figures shown.
1 Temporary classrooms are not included in total classrooms or calculated in pupil capacities.

Table 11

SIZES OF EXISTING SITES COMPARED WITH STANDARD AREAS
Port Arthur, Texas

Schools	Size in Acres	Number of Pupils at 100% Existing Capacity[1]	Acreage Needed[2]	Existing Deficient or Excess Acreage
High Schools				
Stephen F. Austin	14.0	840	18.4	-4.4
Thomas Jefferson	68.0	2,190	31.9	+36.1
Lincoln (N-W)	15.0	1,140	21.4	-6.4
Jr. High Schools				
Thomas Edison	14.5	1,440	24.4	-9.9
Woodrow Wilson	23.5	1,860	28.6	-5.1
Elementary Schools				
Geo. Washington Carver (N-W)	15.0	750	12.5	+2.5
DeQueen	4.5	720	12.2	-7.7
Franklin	10.2	840	13.4	-3.2
Sam Houston	20.0	720	12.2	+7.8
Lamar (N-W)	3.5	450	9.5	-6.0
Robert E. Lee	7.0	750	12.5	-5.5
Pease	25.0	300	8.0	+13.0
Travis	34.0	720	12.2	+21.8
Tyrrell	7.5	720	12.2	-6.7
Booker T. Washington (N-W)	4.1	870	13.7	-9.6
Wheatley (N-W)	20.0	450	9.5	+10.5

1 Capacity obtained from Port Arthur Independent School District.

2 Size of school site, gross acreage:
Elementary (minimum), 5 acres + 1 acre for each 100 pupils.
Secondary (minimum), 10 acres + 1 acre for each 100 pupils.

Table 12

CAPACITY AND ENROLLMENT OF SCHOOLS
Port Arthur, Texas

Schools	Grades	No. of Classrooms	Pupil Capacity	1960-61* Membership	Present Capacity Used
High Schools					
Stephen F. Austin	1-12	29	840	986	117.3
Thomas Jefferson	10-12	73	2,190	1,765	80.6
Lincoln (N-W)	7-12	38	1,140	1,953	171.3
Jr. High Schools					
Thomas Edison	6-9	48	1,440	1,281	88.9
Woodrow Wilson	7-9	62	1,860	1,451	78.0
Elementary Schools					
Geo. Washington Carver (N-W)	K-6	26	750	875	116.8
DeQueen	K-6	26	720	769	106.8
Franklin	K-6	30	840	643	76.5
Sam Houston	K-5	26	720	644	89.4
Lamar (N-W)	K-6	17	450	704	156.3
Robert E. Lee	K-6	27	750	668	89.1
Pease	K-6	11	300	242	80.7
Travis	K-6	26	720	592	82.1
Tyrrell	K-5	26	720	875	121.5
Booker T. Washington (N-W)	K-6	31	870	835	96.0
Wheatley (N-W)	K-6	17	450	484	107.5

*October 17, 1960 (does not include kindergarten or special education).

Table 13

MEMBERSHIP TREND
Port Arthur Independent School District
Port Arthur, Texas

Years	Average Memberships			
	Total	Elementary 1-6	Jr. High 7-9	Sr. High 10-12
1940-41	9,647	5,246	2,420	1,981
1941-42	9,427	5,198	2,283	1,946
1942-43	9,447	5,325	2,289	1,833
1943-44	9,260	5,227	2,397	1,636
1944-45	9,208	5,297	2,337	1,574
1945-46	9,091	5,267	2,189	1,635
1946-47	9,176	5,172	2,108	1,896
1947-48	9,403	5,456	2,184	1,763
1948-49	9,646	5,768	2,094	1,784
1949-50	9,991	5,740	2,395	1,856
1950=51	10,380	5,868	2,628	1,884
1951-52	10,849	6,110	2,746	1,993
1952-53	11,361	6,320	2,965	2,076
1953-54	12,206	6,895	3,052	2,259
1954-55	13,168	7,239	3,275	2,654
1955-56	13,216	7,609	3,104	2,503
1956-57	13,487	7,816	3,099	2,572
1957-58	14,235	8,360	3,107	2,768
1958-59	14,313	8,318	3,409	2,586
1959-60	14,302	8,051	3,692	2,559
1960-61[1]	14,710[2]	7,999	4,041	2,670

Source: Superintendent's Annual Report.

1 October 7, 1960 Report.
2 Exclusive of special school membership.

Table 14

RESIDENT BIRTH DATA
Port Arthur, Texas

Year	Resident Births*	Increase or Decrease Over Previous Year	Percent of 1940 Births	Births Per 1000 Pop.
1940	1,092	-	-	47.8
1941	1,303	+211	119	41.8
1942	1,577	+274	144	35.9
1943	1,755	+178	161	33.5
1944	1,653	-102	151	36.8
1945	1,616	-37	148	39.1
1946	1,924	+308	176	33.9
1947	2,201	+277	202	30.6
1948	2,262	+61	207	30.8
1949	2,346	+84	215	30.7
1950	2,177	-169	199	34.0
1951	2,263	+86	207	34.5
1952	2,326	+63	213	35.4
1953	2,482	+156	227	34.8
1954	2,523	+41	251	35.9
1955	2,424	-99	222	39.1
1956	2,593	+169	237	38.1
1957	2,685	+92	246	38.4
1958	2,856	+171	261	37.6
1959	2,750	-106	252	40.6
			Average	36.4

*Source: Port Arthur Health Department.

Table 15

ESTIMATED FUTURE SCHOOL MEMBERSHIPS
Port Arthur, Texas

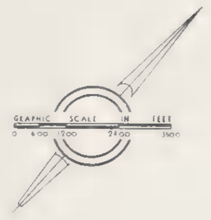
Year	Resident Births	Estimated Future Present Births[1]	Reporting First Grade	Estimated Future Reporting for First Grade[2]	Projected School Memberships By Grades			Existing and Projected School Memberships[4]
					Elementary Grades	Jr. High Grades	Sr. High Grades	
1940	1,092							9,647
1941	1,303							9,427
1942	1,577							9,447
1943	1,755							9,260
1944	1,653							9,208
1945	1,616							9,091
1946	1,924		942					9,176
1947	2,201		1,168					9,403
1948	2,262		1,116					9,646
1949	2,346		891					9,991
1950	2,177		1,100					10,380
1951	2,263		1,072					10,849
1952	2,326		1,138					11,361
1953	2,482		1,503					12,206
1954	2,523		1,388					13,168
1955	2,424		1,323					13,216
1956	2,593		1,326					13,487
1957	2,685		1,400					10,240
1958	2,856		1,353					14,360
1959	2,750		1,368					14,392
1960		3,000		1,364[3]	7,999[3]	4,041[3]	2,670[3]	14,836[3]
1961		3,083		1,472	8,219	4,097	2,966	15,282
1962		3,166		1,574	8,510	4,005	3,220	15,735
1963		3,249		1,630	8,854	3,895	3,480	16,229
1964		3,332		1,731	9,269	3,964	3,509	16,769
1965		3,415		1,670	9,601	4,027	3,432	17,060
1966		3,498		1,822	10,068	4,102	3,347	17,517
1967		3,581		1,872				18,138
1968		3,664		1,923				18,780
1969		3,747		1,973				19,465
1970		3,831		2,024				20,163
1971		3,914		2,074				20,877
1972		3,997		2,125				21,610
1973		4,080		2,175				22,292
1974		4,163		2,225				22,926
1975		4,246		2,276				23,567
1976		4,329		2,327				24,161
1977		4,412		2,377				24,836
1978		4,495		2,428				25,431
1979		4,578		2,478				26,023
1980				2,529				26,617
1981				2,579				27,205
1982				2,629				27,801
1983				2,680				28,403
1984				2,730				28,997
1985				2,781				29,587

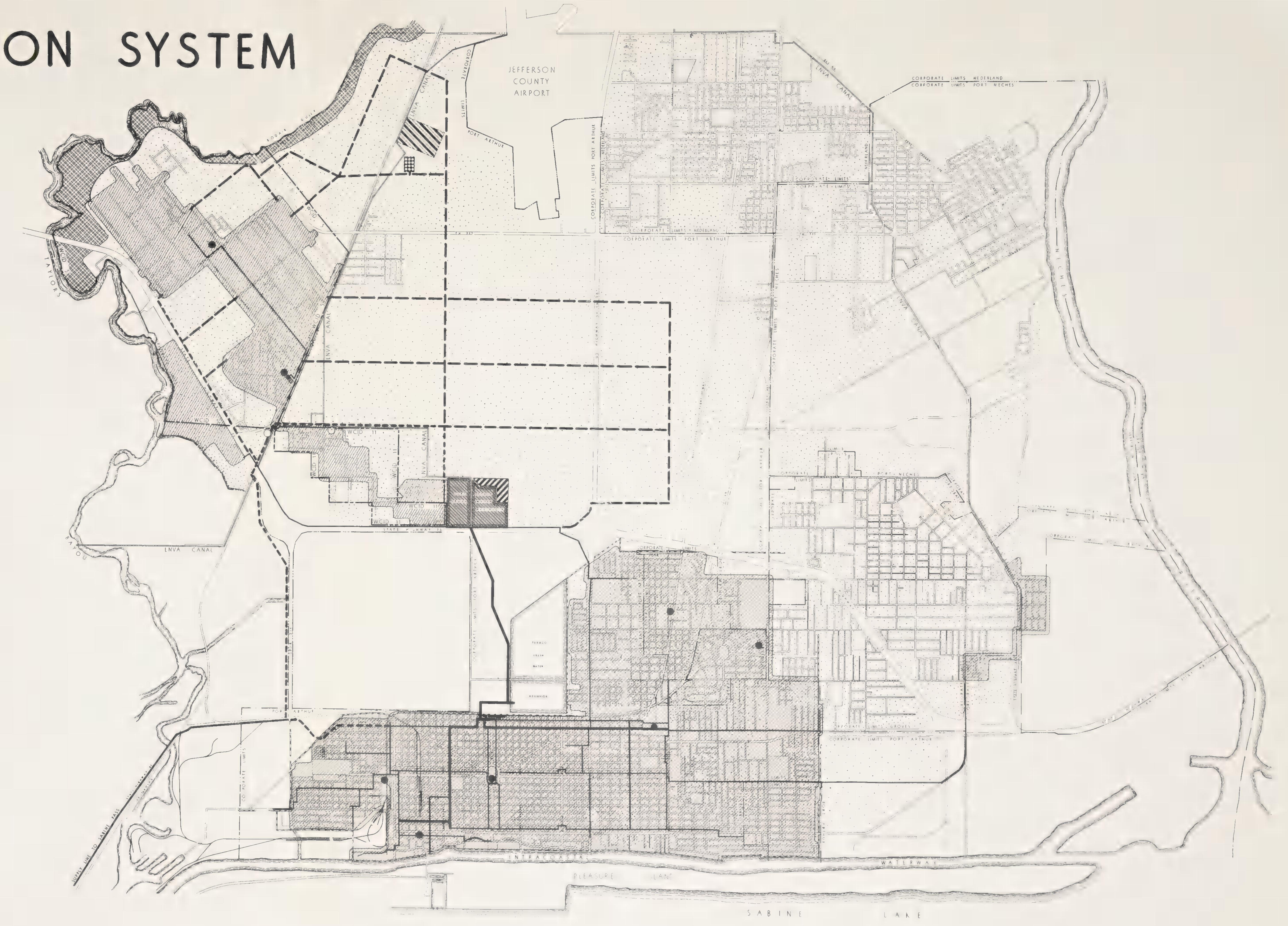
[1] Estimated births based on 1940-59 average per 1000 urban area population (36.4).
[2] Based on average percent of births reporting for First Grade 1950-60 (60.75).
[3] Enrollment September, 1960, Superintendent's Report.
[4] Special Education figures included 1940-60. Excluded 1961-85.

WATER DISTRIBUTION SYSTEM

LEGEND

——	EXISTING WATER LINES 10"-14"
━━	EXISTING WATER LINES OVER 16"
— —	PROPOSED WATER LINES (ULTIMATE)
- - -	PROPOSED WATER LINES (INTERMEDIATE)
— - —	WATER CONTROL & IMPROVEMENT DISTRICT Nº 5
— - - —	WATER CONTROL & IMPROVEMENT DISTRICT Nº 11
━━	LOWER NECHES VALLEY AUTHORITY FRESH WATER CANAL
●	EXISTING WATER STORAGE TANK
○	PROPOSED WATER STORAGE TANK
■	EXISTING WATER TREATMENT PLANT
▦	PROPOSED WATER TREATMENT PLANT
▩	EXISTING FRESH WATER RESERVOIR
▨	PROPOSED EXPANSION OF FRESH WATER RESERVOIR
▧	PROPOSED FRESH WATER RESERVOIR
▩	PROPOSED PUBLIC PRESERVE
▤	AREAS OF EXISTING WATER SERVICE
•	EACH DOT REPRESENTS 20 PERSONS - 1985





PORT ARTHUR, TEXAS
AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

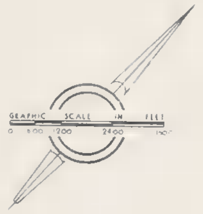
HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS CIVIL ENGINEERS LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

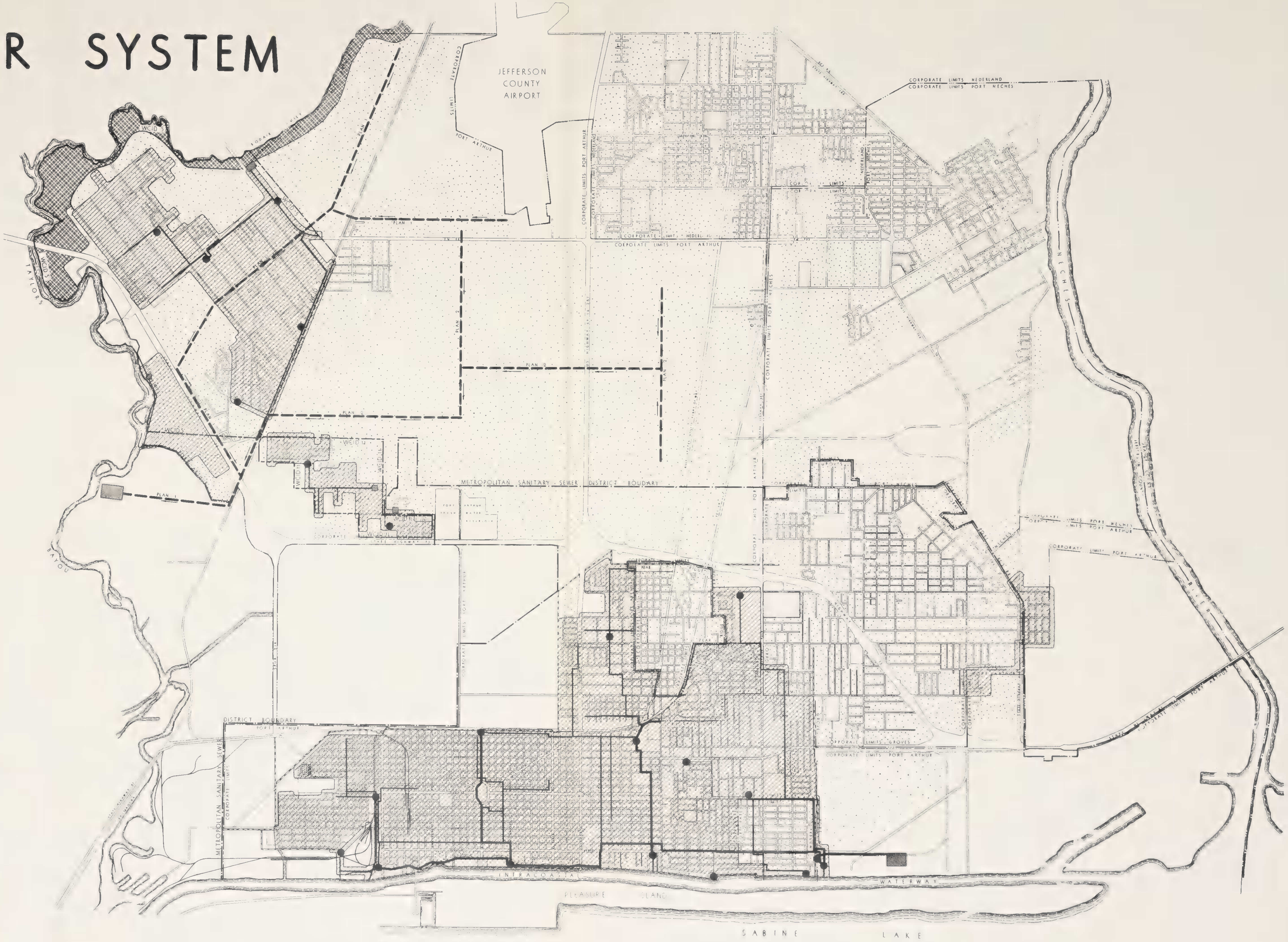
PLATE 24

SANITARY SEWER SYSTEM

LEGEND

- ─ EXISTING SEWER LINES LESS THAN 8" SERVING AS MAIN LINES
- ━ EXISTING SEWER LINES 12"-21"
- ━ EXISTING SEWER LINES OVER 21"
- ╍ PROPOSED INTERCEPTOR MAIN
- ● LIFT STATION
- ─·─ METROPOLITAN SANITARY SEWER DISTRICT BOUNDARY
- ■ EXISTING SEWAGE TREATMENT PLANT
- ▩ PROPOSED SEWAGE TREATMENT PLANT
- ▦ PROPOSED PUBLIC PRESERVE
- ▨ AREAS OF EXISTING SANITARY SEWER SERVICE
- • EACH DOT REPRESENTS 20 PERSONS - 1985
- ── WATER CONTROL & IMPROVEMENT DISTRICT Nº 5
- ─ - ─ WATER CONTROL & IMPROVEMENT DISTRICT Nº 11





PORT ARTHUR, TEXAS
AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

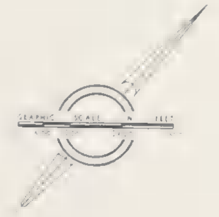
HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

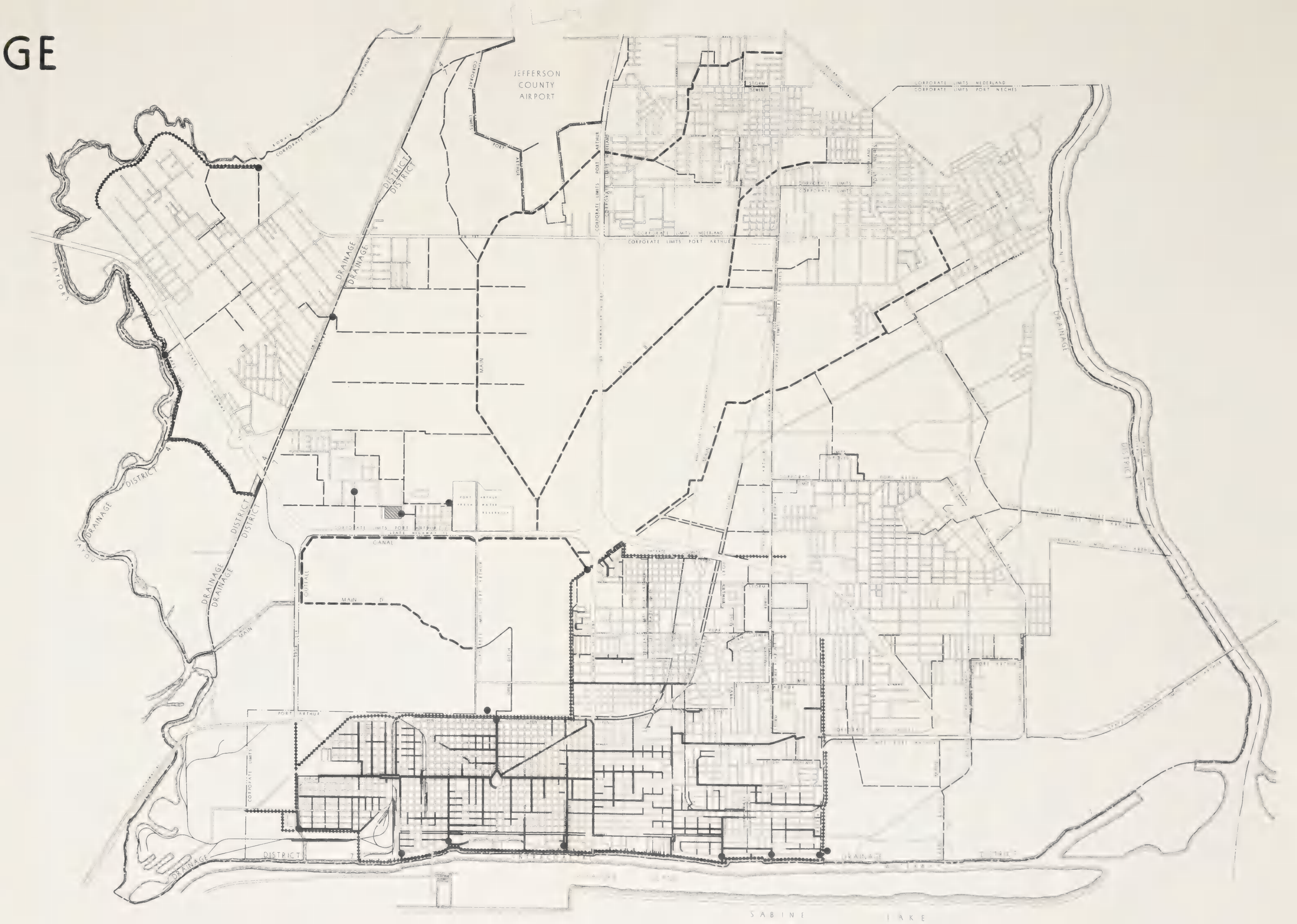
PLATE 25

STORM DRAINAGE

LEGEND

—— STORM SEWER LESS THAN 24"
━━ STORM SEWER OVER 30"
━━ BOX CULVERT (SIZE NOT INDICATED)
++++ EXISTING EARTH LEVEE
++++ EXISTING CONCRETE SEAWALL AND EARTH LEVEE
● EXISTING PUMP STATION
▨ EXISTING SUMP BASIN
— — DRAINAGE DISTRICT BOUNDARY
— · — DRAINAGE DISTRICT MAIN CANAL
— — DRAINAGE DISTRICT PRIMARY LATERAL
━ ━ DRAINAGE DISTRICT MAIN OUTFALL CANAL




JEFFERSON COUNTY AIRPORT
CORPORATE LIMITS NEDERLAND
CORPORATE LIMITS PORT NECHES
CORPORATE LIMITS PORT ARTHUR
CORPORATE LIMITS NEDERLAND
STORM SEWER
TAYLORS BAYOU
DRAINAGE DISTRICT
DRAINAGE DISTRICT 4
MAIN OUTFALL
MAIN D OUTFALL CANAL
CORPORATE LIMITS PORT ARTHUR STATE HIGHWAY
PORT ARTHUR FRESH WATER RESERVOIR
NECHES
DRAINAGE DISTRICT
SABINE LAKE

PORT ARTHUR, TEXAS AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

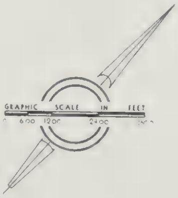
HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS [illegible] ENGINEERS LANDSCAPE ARCHITECTS
SAINT [illegible] MISSOURI

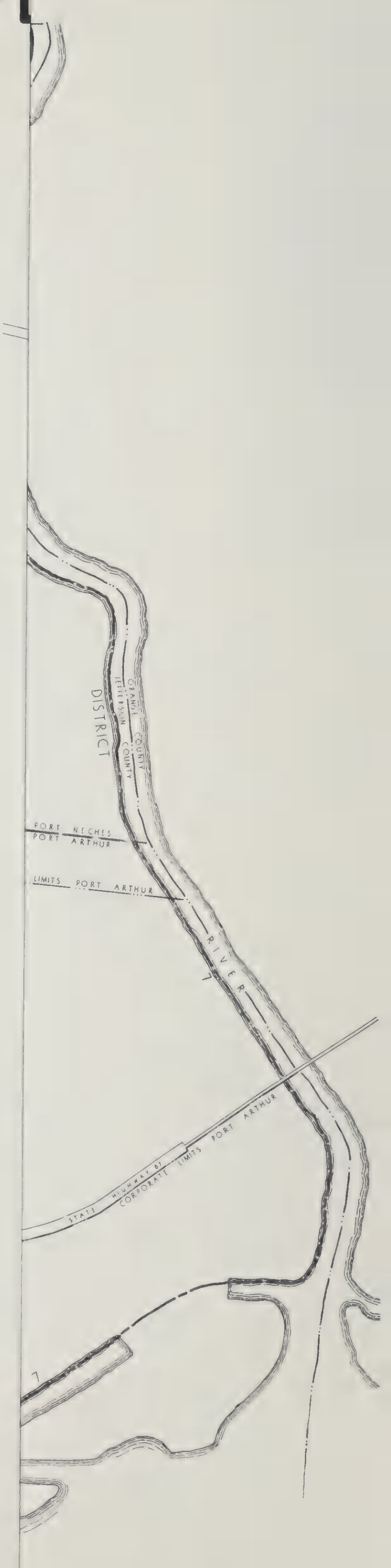
PLATE 26

STORM DRAINAG

LEGEND

──	STORM SEWER LESS THAN 24"
━━	STORM SEWER OVER 30"
━━	BOX CULVERT (SIZE NOT INDICATED)
•••••••••	EXISTING EARTH LEVEE
●●●●●●●●	EXISTING CONCRETE SEAWALL AND EARTH LEVEE
●	EXISTING PUMP STATION
▨	EXISTING SUMP BASIN
— - —	DRAINAGE DISTRICT BOUNDARY
━ ━	DRAINAGE DISTRICT MAIN CANAL
— —	DRAINAGE DISTRICT PRIMARY LATERAL
━━ ━━	DRAINAGE DISTRICT MAIN OUTFALL CANAL





PORT ARTHUR, TEXAS
AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS CIVIL ENGINEERS LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 26

PUBLIC SERVICES*

A modern community cannot function without an adequate supply of water. At present, Port Arthur has an unlimited source of potable water, but it must be made available to the population of the city for an inadequate distribution system could be a serious obstacle to urban growth. Control of the public water supply is one of the most effective means of directing the pattern of future growth of the city.

Existing Water System

The existing water distribution system of Port Arthur is shown on Plate 24, as well as the probable future distribution of population. The areas which will require water service are those which are now unserved and which are expected to develop in the future.

Water Supply

All of the water delivered to the Port Arthur system is obtained from the L.N.V.A. This Authority draws its water from the Neches River north of Beaumont. It is transferred to Port Arthur through "canals" where it is pumped into the City Reservoir.

The McGee Bend Dam and Reservoir project, currently under construction northwest of Jasper, has a three-fold purpose. This is (1) control floods, (2) generate hydro-electric power, and (3) conserve water for municipal, industrial, and agricultural uses. This project and the L.N.V.A.'s participation in it further assures an unlimited amount of water for the City of Port Arthur. The project is expected to be completed in about five years.

The filtration plant presently has a capacity of 13.6 million gallons per day. A design safety factor will allow the plant to distribute in excess of 15 million gallons per day for a short period. The plant facilities were constructed to allow for an increased operational capacity of 15 million gallons per day with the design safety factor allowing close to 20 million gallons per day.

Water Distribution

The water distribution system has been extended and re-enforced from time to time as the city's requirements increased, until it now exists as shown on Plate 24. The area of service is assumed to include all property within 200 feet of a water line, although this could vary in certain cases. It is evident from Plate 24 that nearly all of the presently developed area of Port Arthur is served by the existing water distribution system.

---

*Preliminary Report, "Public Services", dated, March 1961, Harland Bartholomew and Associates

Water Consumption

Water consumption and per capita use have increased in Port Arthur as population has grown. The trends in water consumption are presented in Table 16 for each year since 1941. Although the amount of water used has not increased on a year to year basis, the over-all trend is obvious. The amount of treated water delivered to the system has risen from 850.7 million gallons in 1941 to 2,423.6 million gallons in 1960, an increase of approximately 285 percent. These figures do not relate actual consumption since they include commercial and industrial use, and water loss within the distribution system. Average daily consumption has increased from 2.3 million gallons in 1941 to 6.2 million gallons in 1960, an increase of almost 270 percent. In the past 10 years, the maximum daily consumption has occurred in either June or July except in 1952 when it occurred in October. This maximum daily consumption has in the past represented between 120 to 170 percent of the average daily consumption for the year. The number of meters in service in Port Arthur has increased from 10,902 in 1941 to 17,042 in 1960.

Table 17 was prepared to show the average daily per capita consumption. The average person in Port Arthur used approximately 44.4 gallons of water a day in 1941, compared to more than 85 gallons today. This consumption is considerably less than the national average as reported by the American Water Works Association of 162 gallons per capita per day. It must be pointed out that the averages reported include residential, commercial and industrial use, and water loss within the system. Both the Gulf and Texaco refineries have their own water supply from the L.N.V.A., thus accounting for the extremely low average daily per capita consumption. The Gulf refinery obtains its drinking water from the Port Arthur system.

Estimates of future water supply needs have been developed and are also shown in Table 17. According to the American Water Works Association, the national average daily per capita use is approximately 162 gallons and it is increasing at a rate of about one gallon yearly. The last line in Table 17 shows that an average daily use of 17.9 million gallons may be expected by 1985 based on an estimated 110.3 gallons per capita per day usage by the 162,040 persons that are expected to be served by the system in that year.

The Port Arthur Water Plant has already provided the 1970 average daily figure of 10 million gallons (in July, 1960, the maximum daily consumption equalled 10.5 million gallons). However, maximum daily consumption by 1970 could in turn equal 15 to 20 million gallons.

Comparing these 1970 average and maximum daily figures with the present supply sources, it appears that Port Arthur has no immediate problem. The source of supply will be expanded and improved with the completion of the McGee Bend Dam project. The pump at the reservoir has a capacity in excess of 20 million gallons per day and should be completely adequate at least until 1970. Beyond 1970 additional pumps may be required.

Proposed Water System

Long-range planning for water supply and distribution involves determination of the areas that must be served and the expected population within these areas, as well as coordination with other plans that will affect the public water supply. The 1985 distribution of population is shown on Plate 24. With future population patterns established, the following sections are concerned with the areas to be served and how service can best be provided by the water system in the future.

Areas to be Served

The areas requiring water service in the future can be described as those areas where future growth is expected. These are areas which, for the most part, are not presently within 200 feet of an existing water line, and the areas not located within the proposed public preserve.

Port Arthur Service. As stated earlier, the maximum daily consumption has reached 10.5 million gallons. This demand represented 160 percent of the average daily consumption. The normal range is between 150 and 200 percent. Since Port Arthur's demand has already reached 160 percent, it would be undesirable for this ratio to exceed 1:1.7 or 170 percent. Based on the 1960 maximum daily consumption exceeding the average daily consumption by 160 percent, the existing water treatment plant will be operating at about 97 percent of its capacity if the expected growth occurs between now and the year 1965. It is recommended that the treatment plant capacity be increased to 15 million gallons per day to provide for the expected increase in water consumption and to afford an ample surplus.

Port Acres Service. The existing water treatment plant in this area can operate satisfactorily at a flow through rate of 500 gallons per minute. In 1960, the average daily consumption rate was 68.8 gallons per capita. This low rate in comparison to the main city average is due largely to the fact that there are a small number of commercial and industrial customers in the district. In 1960, the district pumped an average of 322,372 gallons daily or about 45 percent of its capacity. On July 20, 1960, the maximum daily consumption was recorded at 599,700 gallons, or in excess of 83 percent of plant capacity and 186 percent of average daily consumption. This ratio of 1:1.8 is extremely high and steps should be taken in the near future to correct the situation. The water demand in this northwest section of Port Arthur will probably exceed the plant capacity within five years.

Provision of Service

The basic problems in planning Port Arthur's future water system are those of further development and extension of the distribution system and providing a new water treatment plant for the area north of State Highway 73. Future improvements should be carried out in such a manner as to guide and direct community growth within the framework of the Comprehensive Plan.

Existing Sanitary Sewer System

The primary trunk mains, pumping stations and treatment plant of the existing sanitary sewer system are shown on Plate 25. The areas presently served by the local sewer lines are also shown on this plate although the actual location of the local sewer lines is not shown. The sanitary sewer system that has been developed over the years is somewhat unique because of the topography of the area. The system is comprised of a great number of lift stations and force mains, necessary to transport the sewage from its points of collection to the treatment plant located off Procter Street Extension.

Sewage Treatment Facilities

The sewage treatment plant has a design capacity of eight million gallons per day which is sufficient to serve a population of 100,000 persons. The plant is designed to accommodate, with certain modifications, a capacity of 12 million gallons per day which will serve an estimated 137,600 persons and will provide screening, settling, sludge digestion, treatment in single-stage, high-rate trickling filters and clarification.

Proposed Sanitary Sewer System

Much of the future growth of Port Arthur will take place in areas either not presently served or inadequately served by the existing sanitary sewer system. Three major problems are involved in providing adequate facilities for the expected 1985 population. First, it will be necessary to provide sewage disposal facilities for all of the expected 1985 population in excess of the estimated 136,500 persons that can be ultimately served by the new sewage treatment plant. Second, it is inevitable that many of the older sewers will need replacement, supplementation or major rehabilitation. Finally, sanitary sewer lines will have to be extended into new residential areas as the need arises.

Sewage Treatment Facilities

The sewage treatment plant in the Port Acres area can be expanded to accommodate a population of 15,000 persons. If the area develops at the estimated rate and the plant is expanded to accommodate 15,000 persons, its useful life will be approximately 10 years. Studies for the proposed sewage treatment plant should be initiated in about five years if the area growth occurs as expected.

The location of the proposed sewage treatment plant is shown on Plate 25. It is recommended that this facility be constructed on Taylor's Bayou west of the Lakeside Park Subdivision. Since there is still a nuisance factor inherent to a sewage treatment plant, it is recommended that the proposed facility be located in an industrial area similar to the new plant. This plant should have a capacity of about nine million gallons per day based on 1985 population and its design should be such that the first stage can be easily expanded when necessary.

The general location of future interceptor mains is also shown. The exact location would of course be determined by detailed engineering studies. The system of interceptor mains is divided into two plans. Plan One has two phases. The first phase serves the populated area of Port Acres bounded by Taylor's Bayou, Rodair Gully, FM 365 and FM 823. Phase Two is designed to serve the anticiated growth areas southwest of the Jefferson County Airport and west of FM 823 and north of FM 365. The time and type of development will dictate the installation of Phase Two.

Plan Two serves the gas field area. The residential development of this area depends upon the duration of the production of the gas field. As the area develops, detailed engineering studies will be necessary to determine the exact location of these lines.

Existing Drainage System

The existing storm drainage facilities of Port Arthur are shown on Plate 26, which also shows the man-made drainage ditches under the jurisdiction of Drainage District No. 7. The main problem of course is topography. A levee protects almost all of the older section of Port Arthur from flooding; however, this also creates another problem, that of pumping all rainfall out of the city.

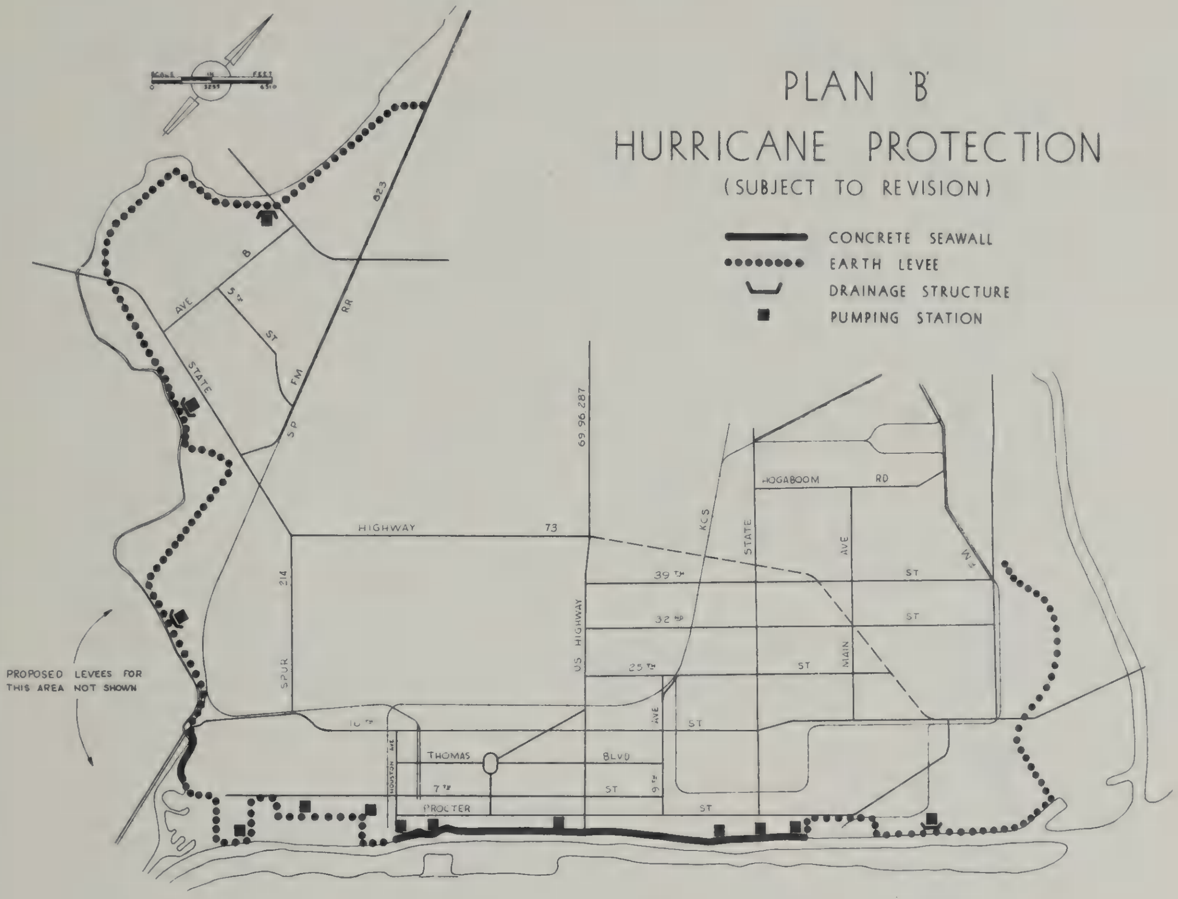
The drainage facilities under the control of Drainage District No. 7 are shown on an urban basis since their facilities handle most of the drainage in the area. The Drainage District operates one pump station which is located southwest of the intersection of U.S. 69, 96, 287 and State Highway 73. Its capacity is 590,000 gallons per minute.

Future Drainage Program

As the population of the city increases and new areas are developed, additional storm sewer facilities will be required. Furthermore, in some of the presently developed sections, additional storm drainage is necessary to augment or replace present storm mains. Comparing the existing storm sewers with the future population distribution gives a clear indication of where storm sewers may be required in the future, depending upon the type of development. Detailed future plans for storm sewers are impossible to prepare until the nature of the development is definitely known.

Hurricane Protection

The United States Corps of Engineers has developed two plans of protection for the urban area. Plan B is the generally favored plan. All of the problems have not been solved as yet. The main problem is whether or not to allow ponding of water. This method should be opposed by the local groups as the proposed ponding areas are located in sections of Port Arthur that should be reserved for future residential development. However, this program which proposes a system of seawalls and levees (shown in the sketch on the following page) can solve the hurricane and storm water drainage problem. The plan shown is referred to as Plan B by the Corps of Engineers and its cost to the area is estimated at about $12,000,000. It should be emphasized that this cost is small compared to the value of protection that it will provide for the area.



PLAN 'B'
HURRICANE PROTECTION
(SUBJECT TO REVISION)

Table 16

TRENDS IN WATER CONSUMPTION
Port Arthur, Texas

Year	Water Purchased From L.N.V.A.[1]	Treated Water Delivered to System[1]	Average Daily Consumption[1]	Maximum Daily Consumption[1]	Meters in Service[3]
1941		850.7	2.3	2.6	10,902
1942		949.1	2.6	2.7	11,360
1943	467.4[2]	1,145.7	3.1	4.4	11,342
1944	1,220.1	1,241.2	3.4	3.6	11,479
1945	1,161.8	1,233.9	3.4	3.8	11,855
1946	1,148.3	1,278.2	3.5	3.6	12,128
1947	1,495.5	1,410.1	3.9	5.1	12,635
1948	1,663.1	1,499.3	4.1	4.7	13,068
1949	1,366.7	1,429.9	3.9	4.8	13,443
1950	1,500.4	1,419.7	3.9	4.2	14,051
1951	1,596.5	1,598.6	4.4	5.1	15,629
1952	1,973.1	1,661.8	4.5	6.1	15,079
1953	2,215.5	1,832.2	5.0	5.9	15,225
1954	2,326.9	1,934.1	5.2	6.7	15,469
1955	2,323.5	2,039.7	5.4	6.3	15,574
1956	2,532.8	2,253.8	5.9	7.3	15,960
1957	2,424.0	2,245.3	5.8	7.5	16,087
1958	2,522.7	2,350.8	6.0	8.0	16,392
1959	2,357.8	2,287.3	5.9	8.2	16,630
1960	2,520.2	2,423.6	6.2	9.0	17,042

[1] Million gallons.

[2] Water sold to city January 1, 1941 to April 19, 1943 by private company. Figures not available. L.N.V.A. service began April 19, 1943.

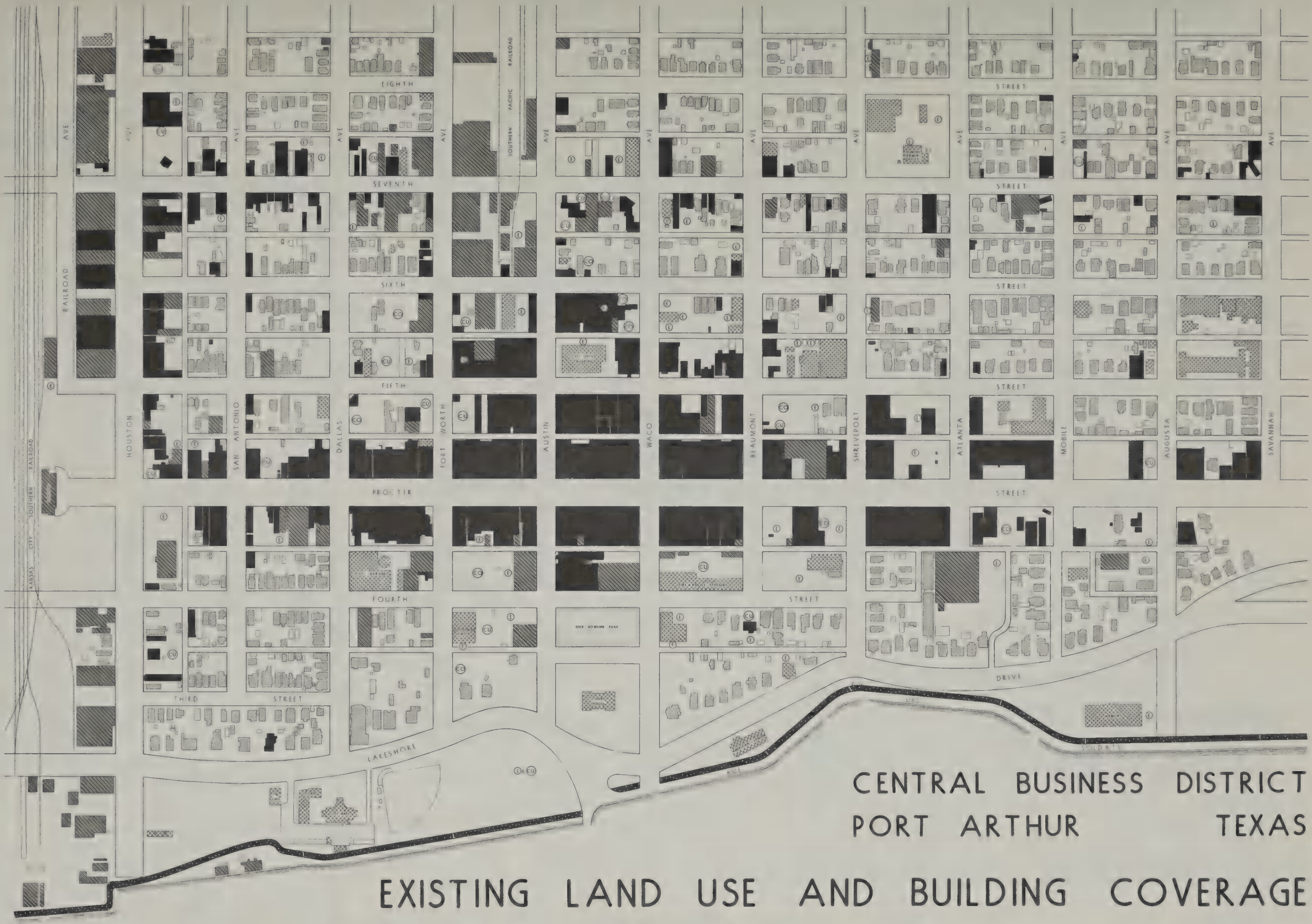
[3] Includes free meters.

Table 17

POPULATION AND WATER CONSUMPTION
Port Arthur, Texas

Year	Treated Water Delivered to System[1]	Average Daily Consumption[1]	Population Served by Distribution System	Aver. Daily Gallons Per/Capita
1941	850.7	2.3	51,839	44.4
1942	949.1	2.6	53,359	48.7
1943	1,145.7	3.1	54,859	56.5
1944	1,241.2	3.4	56,399	60.3
1945	1,233.9	3.4	57,919	58.7
1946	1,278.2	3.5	59,439	58.9
1947	1,410.1	3.9	60,959	63.9
1948	1,499.3	4.1	62,479	65.6
1949	1,429.9	3.9	63,998	60.9
1950	1,419.7	3.9	65,518	59.5
1951	1,598.6	4.4	65,584	67.1
1952	1,661.8	4.5	66,367	67.8
1953	1,832.2	5.0	67.151	74.4
1954	1,934.1	5.2	67,935	76.5
1955	2,039.7	5.4	68,719	78.6
1956	2,253.8	5.9	69,503	84.9
1957	2,245.3	5.8	70,342	82.4
1958	2,350.8	6.0	71,071	84.4
1959	2,287.3	5.9	71,855	82.1
1960	2,423.6	6.2	72,645	85.3
1970	3,250.6	10.0	107,836	95.3
1980	4,077.6	15.3	145,312	105.3
1985	4,491.1	17.9	162,040	110.3

[1] Million gallons.



CENTRAL BUSINESS DISTRICT
PORT ARTHUR TEXAS

EXISTING LAND USE AND BUILDING COVERAGE

LEGEND

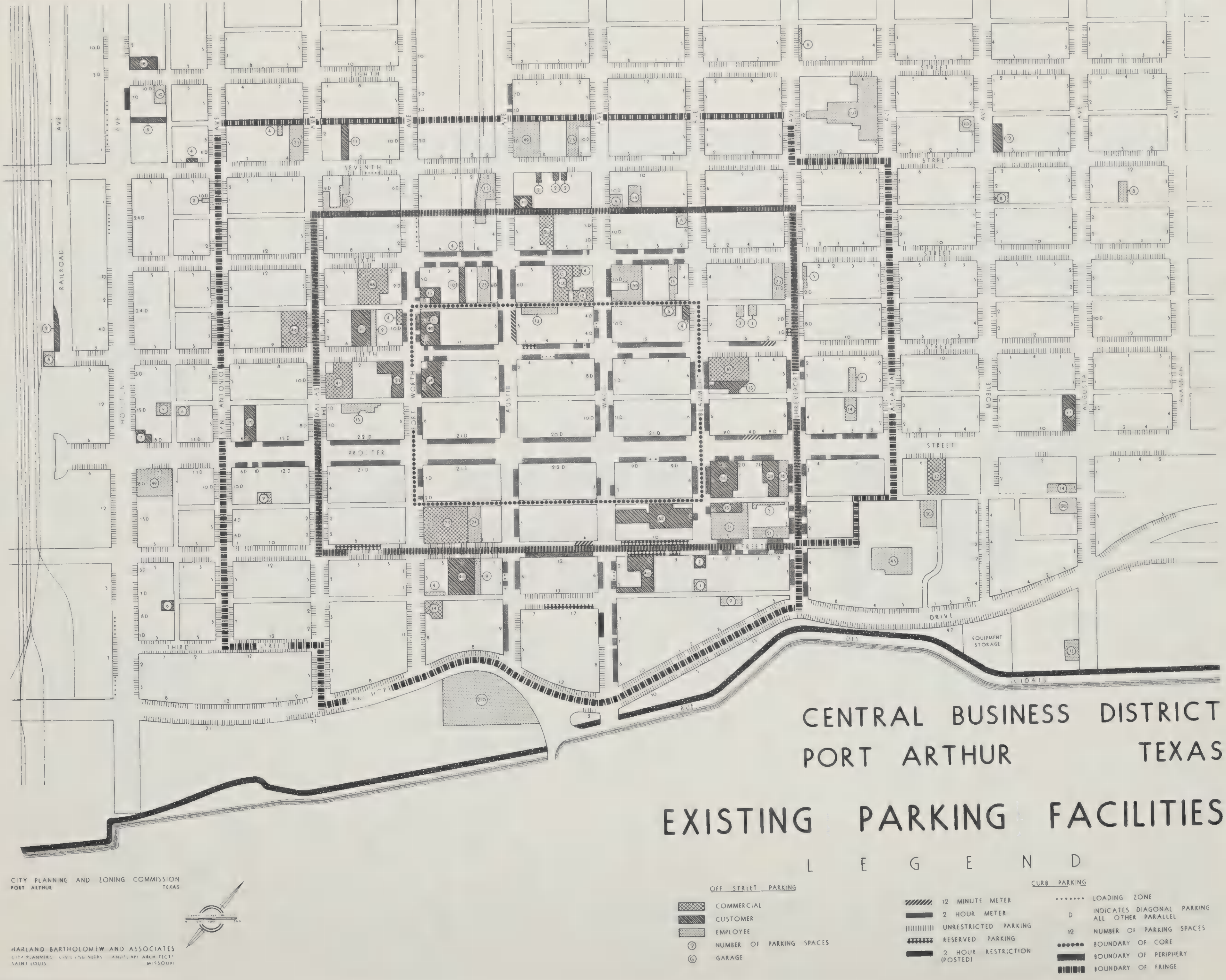
- ☐ RESIDENTIAL STRUCTURE
- ▨ PUBLIC AND SEMI-PUBLIC STRUCTURE
- ■ COMMERCIAL STRUCTURE
- ▨ INDUSTRIAL STRUCTURE
- CU CUSTOMER PARKING LOT
- CO COMMERCIAL PARKING LOT
- E EMPLOYEE PARKING LOT

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS CIVIL ENGINEERS LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 27

PLATE 28



CENTRAL BUSINESS DISTRICT
PORT ARTHUR TEXAS

EXISTING PARKING FACILITIES

LEGEND

OFF STREET PARKING

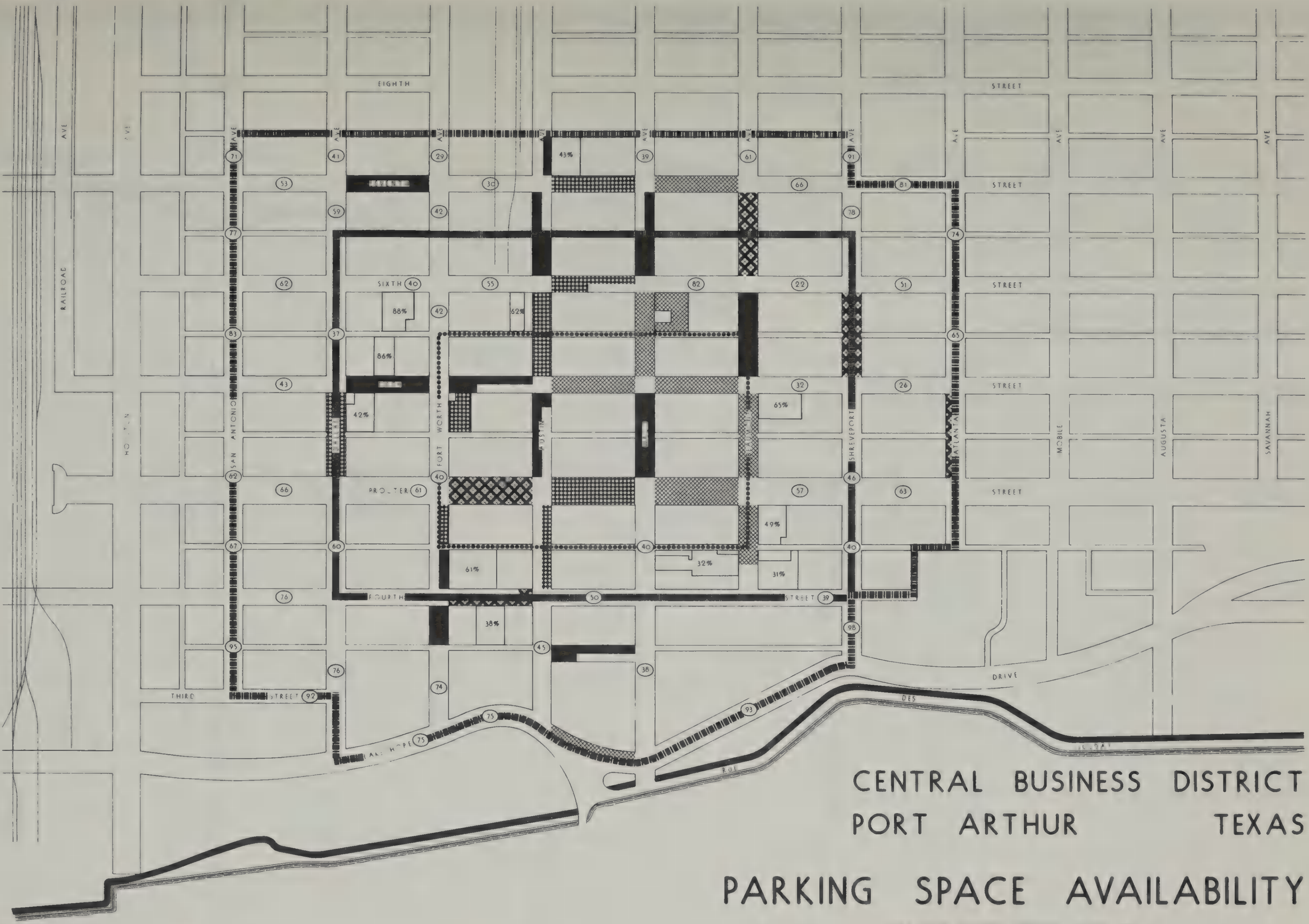
▨	COMMERCIAL
▨	CUSTOMER
▨	EMPLOYEE
⑨	NUMBER OF PARKING SPACES
Ⓖ	GARAGE

CURB PARKING

▨	12 MINUTE METER
▬	2 HOUR METER
‖‖‖‖	UNRESTRICTED PARKING
✕✕✕✕	RESERVED PARKING
▬	2 HOUR RESTRICTION (POSTED)
……	LOADING ZONE
D	INDICATES DIAGONAL PARKING ALL OTHER PARALLEL
12	NUMBER OF PARKING SPACES
●●●●	BOUNDARY OF CORE
▬	BOUNDARY OF PERIPHERY
▮▮▮▮	BOUNDARY OF FRINGE

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS CIVIL ENGINEERS LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI



CENTRAL BUSINESS DISTRICT
PORT ARTHUR TEXAS

PARKING SPACE AVAILABILITY

PEAK HOUR, AVERAGE WEEKDAY, MARCH, 1961

LEGEND

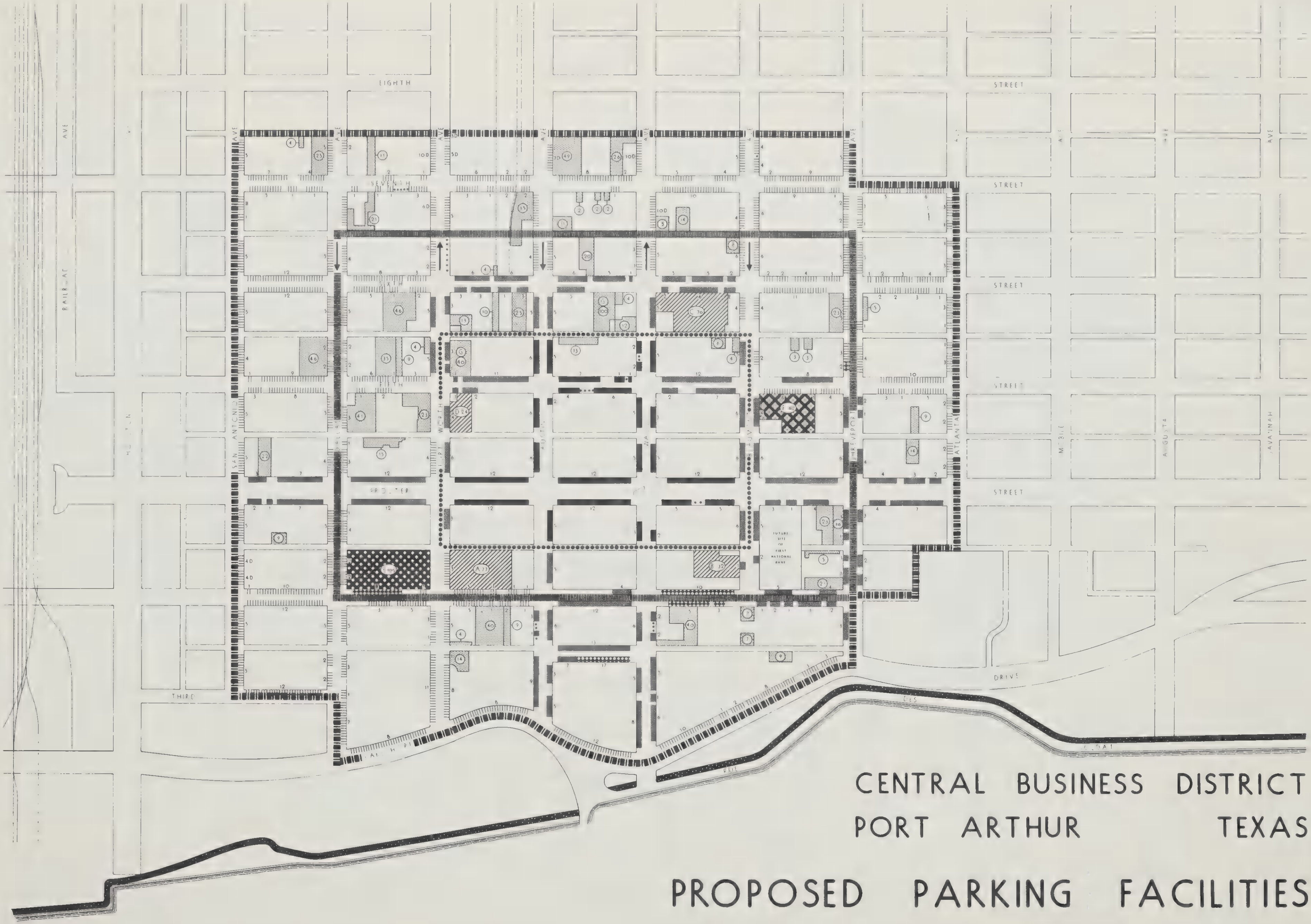
- ■ 0 TO 5% VACANCY
- ▦ 6 TO 10% VACANCY
- ▩ 11 TO 15% VACANCY
- ▨ 16 TO 25% VACANCY
- (45) PERCENT VACANCY ON-STREET
- 60% PERCENT VACANCY OFF-STREET LOTS
- ●●●●●● BOUNDARY OF CORE
- ▬ BOUNDARY OF PERIPHERY
- ▥ BOUNDARY OF FRINGE

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 29

PLATE 30



CENTRAL BUSINESS DISTRICT
PORT ARTHUR TEXAS

PROPOSED PARKING FACILITIES

LEGEND

- ▨ PROPOSED MUNICIPAL LOT (INTERMEDIATE)
- ▩ PROPOSED MUNICIPAL LOT (FUTURE)
- E105 PROPOSED SITE — CAPACITY
- ⑨ NUMBER OF PARKING SPACES EXISTING LOTS TO REMAIN
- Ⓖ GARAGE
- ▬ 1 HOUR METERS
- ▬ 2 HOUR METERS
- ||||||||||| UNRESTRICTED PARKING
- ▦ RESERVED PARKING
- • • • • • LOADING ZONE
- D INDICATES DIAGONAL PARKING ALL OTHER PARALLEL
- 12 NUMBER OF PARKING SPACES
- → DIRECTION OF ONE-WAY STREETS
- ●●●●●● BOUNDARY OF CORE
- ▬ BOUNDARY OF PERIPHERY
- ▮▮▮ BOUNDARY OF FRINGE

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PARKING*

The central business district of Port Arthur is the destination of a great number of the city's vehicular traffic movements. Not only must adequate highway facilities be provided, but there must be sufficient off-street parking facilities provided to meet the present and future demand.

Existing Parking Conditions

A prerequisite for the development of a parking plan is a careful review and analysis of existing conditions which relate to vehicular parking. Many of the physical characteristics of a business district affect the parking conditions in that area. The use, coverage and value of buildings, traffic conditions and regulations and the existing parking supply are all important. The following study of existing conditions includes a review of these factors.

Arrangement and Character of the Business District

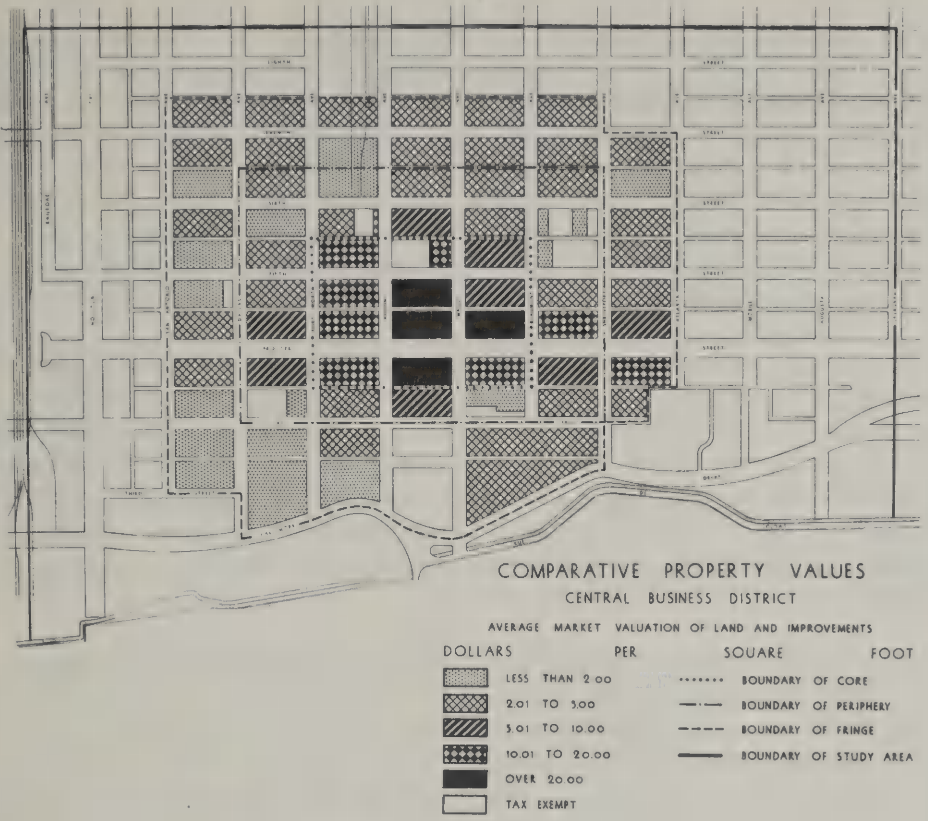
From the land use survey conducted in October, November and December of 1959, the land use and building coverage within and surrounding the central business district was determined and is shown on Plate 27. Commercial usage is most intensive within the core of the study area, namely along Procter and 5th Streets, between Ft. Worth Avenue and Beaumont Avenue. Beyond this core of concentrated commercial activity, mixed industrial, commercial and public and semipublic uses encircle the area and form the periphery of the central business district. The fringe of the business district is composed of mixed commercial, industrial and residential land uses. Each of the three general areas (core, periphery and fringe) in downtown Port Arthur is indicated in the sketch on the following page.

Comparative Property Values

The sketch shows the average market value of land and improvements per square foot for all property within the central business district (market value is estimated at two times the assessed value). As would be expected, the highest values are located within the core of the business district along Procter Street. Values in this area range from $8.00 per square foot to more than $34.00 per square foot on the north side of Procter Street between

---

*Preliminary Report, "Parking, Public Buildings and City's Appearance, dated June, 1961, Harland Bartholomew and Associates.



Austin Avenue and Waco Avenue. Values in the periphery of the business district range from less than $1.00 to more than $9.00 per square foot. Values in the fringe area for the most part are less than $3.00 per square foot.

Total assessed valuation of the study area ($11,667,745) exclusive of tax exempt and railroad property, amounts to 11.98 percent of the total assessed value of the city ($97,385,990), while the area of the district (309 acres) represents only 1.04 percent of the total city land area (29,515.81 acres). These figures point out the vital necessity of preserving and enhancing values in the central business district.

Land values exert a considerable influence upon the development of a parking plan. Where land values are relatively low, parking lots may be justified, and where land values are high, the most economical use of the land would require a parking garage.

Existing Parking Facilities

The existing parking facilities in the central business district study area are shown graphically on Plate 28. The number of parking spaces by types and their percent of the total are presented in Table 18. The table shows a total of 1,551 on street parking spaces and 1,402 off-street spaces for a total of 2,953 spaces in the central business district study area. Of the 1,551 curb spaces, 695 or 44.8 percent are metered. There are only two types of meters in the study area of which 15 are 12-minute and 680 are two-hour. Of the 856 unmetered spaces, all but five are unrestricted. These unrestricted spaces account for 54.9 percent of the total on-street spaces.

Ninety percent of the existing off-street spaces are in lots. Customer lots provide 421 spaces and commercial lots provide 304 spaces. These two types of parking lots combined, represent 31.7 percent of total lot spaces that can be considered as customer parking spaces. However, a number of the 100 commercial garage spaces could be counted as customer parking spaces. Private lots which include employee lots account for 537 spaces.

Plate 28 graphically shows the existing parking spaces according to the same categories used in Table 17 as of March, 1961. An examination of Plate 28 shows the extent to which meters have been established along Procter Street, 5th Street, 6th Street and adjoining blocks. The drawing also reveals a general absence of off-street parking in the high demand core area. Many of the customer lots and private or employee lots are located in the periphery of the business district.

Use of Existing Parking Facilities

Three parking surveys were conducted to determine the use of existing parking facilities in Port Arthur's central business district. One survey involved a parking "turnover count", in which each parking space, on representative streets, was checked every half-hour during the three days of the survey to determine how long vehicles were parking and various other data. A "vacancy survey" was also conducted in which the number of vacant parking spaces per blockside were counted to obtain an indication of intensity of use by areas and to locate problem areas. The third survey consisted of the distribution, collection and analysis of customer and employee parking questionnaires.

Parking Turnover

The parking turnover survey was conducted during the last week of March, 1961, from 8:00 a.m. to 6:00 p.m. Representative streets in the business district as well as a number of off-street facilities were surveyed on Tuesday, Wednesday and Thursday so as to obtain typical weekday turnover data. This survey developed various parking data, mainly the length of time vehicles parked in the different types of parking spaces.

The percentage of vehicles parking for various periods of time in the different parking facilities is shown on Table 19. This table is very significant in that it gives the best picture of how the existing parking facilities are being used. The location of time desires is determinable when this data is used in conjunction with the parking inventory data.

The 12-minute meters, of course, have the highest percentage of parking for 30 minutes or less. Of those persons using the two-hour meters, 62 percent parked 30 minutes or less.

Table 19 includes turnover percentages for selected off-street parking lots. In the employee lots, as expected, more than three-fourths of all parkers stayed longer than four hours. In customer lots, 47 percent parked less than one hour while 38 percent parked longer than two hours.

The high percentage of total parkers who park for short periods does not mean that an equally high percentage of all spaces in the central business district must be allotted for short-term parking. One short-term parking space can meet the needs of eight parkers who park for one hour, while one parker who parks all day occupies the same space for eight hours.

A summary of the parking turnover survey is shown on Table 20. Considering all types of parking in the central business district, this table reveals that 82 percent of the cars parking in the study area parked for one hour or less, 11 percent parked between one and two hours, four percent parked between two and four hours, and three percent parked more than four hours. By determining the average parking time and space hours parked for each category, the last line in Table 20 indicates that for every 100 parking spaces within the central business district, 51 spaces are needed for cars parking one hour or less, 13 spaces are needed for cars parking between one and two hours, 11 spaces are needed for cars parking between two and four hours and 26 spaces are necessary for cars parking longer than four hours.

Space Availability

For three weekdays in March, 1961, the number of vacant parking spaces along each block face and in every principal off-street lot in the study area was counted each hour. Examination of this data shows that there were consistently more parkers in the central business district between 10:00 a.m. and 11:00 a.m. than during any other hour in the day. The percentage of vacant spaces during this peak hour are shown by categories on Plate 29.

While parking facilities designed for all-day parking may be completely occupied, customer parking facilities should have at least 15 percent of the spaces vacant, if they are to be efficiently used. Plate 29 shows that as a customer facility, the Port Arthur core area was too heavily occupied by parked cars during the survey of March, 1961. The drawing also shows the percentages of vacant spaces in principal off-street lots by category. Where the vacancy level exceeds 25 percent, the actual average vacancy is shown in the outline of the lot area.

Customer and Employee Parking Habits

Two types of parking questionnaires were used in this survey. Approximately 6,000 customer parking questionnaires were distributed throughout the Port Arthur Independent School District to parents of fourth, fifth and sixth grade elementary students and parents of all high school students. Of the 5,970 customer questionnaires distributed, 2,059 or 34.5 percent were returned. With the aid of the Port Arthur Chamber of Commerce, approximately 1,900 employee parking questionnaires were distributed and collected in the central business district. Of those forms distributed, 673 or 35.4 percent were returned.

Table 21 presents a summary to the answers to the customer parking questionnaires and Table 22 presents a summary of the employee parking questionnaires. A study and comparison of the two tables reveals many interesting facts regarding parking and travel habits. In comparing the percentages, some of the more important findings are as follows:

1. In both the customer and employee categories, 81 percent of the people answering the questionnaire drive to the central business district, while only four percent of the employees and 10 percent of the customers ride the bus.

2. Commercial parking lots draw 17 percent of the customer parkers and only 14 percent of the employee parkers. However, 40 percent of the employees park in company owned lots.

3. Nineteen percent of the customers walk one block or less from parking place to destination, yet 37 percent of the employees walk only one block or less. Forty-two percent of the customers walk three blocks or more to their destination while 80 percent of the employees walk two blocks or less. (This is the reverse of what is generally found in the average city.)

4. Seventy-nine percent of the customers usually park for less than two hours and 60 percent park less than one hour.

5. Thirty-nine percent of the customers do all or most of their shopping in the central business district. Only two percent of the customers stated they did no shopping in the business district.

6. Eighty-one percent of the customers stated they would do more shopping in the central business district if traffic congestion were relieved and more convenient parking were available.

Present and Probable Future Needs

In this study, estimates of probable parking needs were based on (1) the estimated number of spaces required to provide a 15 percent vacancy during an average day under present shopping habits, and (2) the results of analyzing the customer and employee parking questionnaires. The results of the analysis are contained in Table 23.

Part I of Table 23 contains data pertaining to the number of spaces studied and the various categories of vacancy found during the survey. Of the 2,168 spaces studied in the core, periphery and fringe, 1,291 or 59.5 percent were occupied. This results in an over-all vacancy of 40.5 percent in all spaces in the central business district.

Part II of Table 23 shows the calculation used to determine the number of spaces required to achieve the desired level of vacancy. These needs amount to 26 spaces in the core, 14 spaces in the periphery and 12 spaces in the fringe area for a total need of 57 spaces by vacancy. This is an almost negligible amount when the size of the central business district (38 blocks) is taken into account. However, the total need is increased to 273 spaces by the loss of 216 on-street spaces caused by the recommended removal of diagonal parking in the central business district.

If the growth of Port Arthur takes place as anticipated during the next 10 years, the central area can also expect a reasonable amount of new growth. Thus, any parking program or plan should not only meet current demands but should also be related to probable future needs. It will be necessary to expand the parking program and meet the additional demand as it occurs. With this in mind, the city cannot anticipate any early solution of the parking problem. It must be realized that the parking plan will have to be constantly reappraised and consistent efforts applied to provide for indicated additional needs.

Proposed Parking Plan

The parking problem in Port Arthur is one of use of space and not the general lack of space. Since the use of space can be traced directly to the customer and employee parkers, the major factor concerned with the alleviation of the problem is one of public education.

A summary of proposed parking facilities and their distribution within the central business district is presented in Table 24. Although the total number of on-street spaces has been reduced because of the abandonment of diagonal parking, the use of these spaces will afford better parking for the customers. The table shows a total of 1,317 on-street spaces and 1,318 off-street spaces for a total of 2,635 spaces in the central business district as compared with the existing 2,953 spaces.

On-street Facilities

It is recommended that all diagonal parking re removed from the streets in the central business district. The removal of diagonal spaces and their replacement with parallel spaces will improve traffic circulation and parking visibility.

The installation of 151 one-hour meters will provide the unusually high percentage of short-term parkers with convenient parking space. These 151 one-hour meters in the core area will be supplemented by 76 two-hour meters.

Off-street Facilities

The proposed parking plan, shown on Plate 30, recommends that the City of Port Arthur undertake a municipal parking program. The initial stage proposes that the city acquire four parcels of land to be improved and used as off-street lots. At a later date, as the demand increases, two additional lots would be acquired.

Lots B and D are presently used for off-street parking as is a section of the proposed Lot C. However, their location is such that they can better serve the downtown area if they are improved and their operation controlled by the city.

Operation of Parking Authority

It is proposed that the City of Port Arthur establish a Parking Authority to develop all phases of the parking program both on-street and off-street. This Authority would acquire property, set rates, negotiate leases, maintain and finance all proposed lots as indicated on Plate 30, and would also be responsibile for supervising the on-street parking spaces. Since there is a close relationship between on-street and off-street parking, it is only logical that authority over all parking facilities be vested in a single agency.

In the proposed parking plan, the off-street facilities would be purchased, constructed and maintained by the Parking Authority and leased to private parties or an association of businessmen for operation. All or part of the revenue obtained from on-street meters and the revenues derived from leasing arrangements for the off-street lots would be applied to amortization of the cost of the lots.

Financial Analysis

The program is divided into two parts. The first, or intermediate phase, consists of Lots A, B, C and D as shown on Plate 30 proposed to be developed within the next five years. Lots E and F are recommended for later consideration unless a prior need becomes evident earlier.

Several assumptions were made as a basis for the analysis shown on Table 25. These were:

1. On-street parking meter revenue would increase as a result of the recommended changes in time limits and rates.

2. Property could be acquired at market value as shown on the city's assessment records (market value is estimated at two times assessed value).

3. Arrangements can be made with business interests to operate the lots under a leasing arrangement with the Parking Authority at the rates arrived at in the financial analysis.

4. Twenty-year serial revenue bonds can be sold at an annual interest rate of four and one-half percent.

Table 25 indicates that if the recommendations for rearranging the present on-street meters are carried out, the annual revenue from the new system will average approximately $69,000 compared with an average of $55,800 collected annually for the past five years from the present system.

Estimates of on-street meter revenues are based upon the number of meters shown on the tables, the recommended hourly rates and an estimated occupancy during an eight-hour day, 300 days in the year. To operate and maintain the on-street meters will require an outlay of $5,730 per year based on $10 per meter. To maintain the 203 spaces contained in the four lots in the intermediate program will require $2,030 annually and $1,670 annually for the two lots in the later program. Thus, a total annual outlay of $7,760 will be needed annually during the next five years to maintain the on-street meters and off-street lots. This amount will increase to $9,430 after five years.

To make the recommended changes in the on-street meters will require an estimated $4,160. This amount includes the cost of removing the diagonal parking meters and replacing them with meters for parallel parking, changing two-hour meters to one-hour, and installing the necessary additional meters. It will not be necessary to purchase any new meters.

To acquire the necessary property and construct the four lots in the intermediate program will cost approximately $263,000. The two additional lots would entail a cost of $169,000 or for the ultimate program a total cost of $432,000. Acquisition costs were determined by multiplying the assessed value of the property by two. Construction costs were estimated at $500 per car space and include grading, surfacing, laneing, lighting and landscaping.

Annual costs of operating the proposed system include amortization of the bonds, maintenance and loss of taxes presently received from the property to be acquired. If 20-year serial revenue bonds bearing a $4\frac{1}{2}$ percent interest rate are used, annual interest and principal payments will amount to $76.68 per thousand, or $20,163 for the intermediate program. This figure would be increased to $33,136 if the two additional lots were included. The estimated annual maintenance cost was estimated as previously noted. Property to be acquired in the intermediate program presently pays $6,842 per year in taxes and this amount is shown as an annual cost to be met. Total estimated annual cost is $34,765 for the four lots, or $53,003 for the six lots comprising the ultimate program.

The use of revenue bonds to finance the program is logical as its costs then would not be a burden on the tax payer which would be the case if general obligation or tax revenue bonds were used. It also is logical to use on-street parking meter receipts to defray part of the cost of the program. While it is anticipated that only a portion of the annual receipts from the meters would be used, it is customary practice or is required by law in many cities to pledge all net revenues from street meters to the financing of off-street parking. In Port Arthur, it is recommended that a major part of the cost of developing the parking lots be defrayed by arranging with downtown interests to lease and operate the facilities.

It is estimated that approximately $21,500 will be required annually over and above the anticipated additional on-street meter receipts to cover the full cost of amortizing the investment, maintaining the lots and supplanting the revenues derived from taxes on the acquired properties. This amounts to a little more than $100 per space per year (intermediate program). This figure could be used as a basis for negotiating agreements for the private operation of the off-street facilities.

In revenue bond financing of parking facilities, bond underwriters insist that revenues available for debt amortization be at least one and one-half times the amount required for such purposes. On the basis of the estimates developed herein the debt coverage ratio for the intermediate program would be 2.7 if all on-street meter receipts were pledged as security.

$$\left(\frac{(69{,}098 - (7{,}760 + 6{,}824)}{20{,}163} = 2.7 \right)$$

This ratio is extremely favorable and no difficulty should be encountered in marketing the bonds.

Table 18

EXISTING PARKING FACILITIES IN THE CENTRAL BUSINESS DISTRICT

Port Arthur, Texas
March, 1961

On-Street Parking	Number of Spaces	% of Total
12 Minute metered	15	1.0
2 Hour metered	680	43.8
Total Metered	695	44.8
2 Hour posted	5	0.3
Unrestricted	851	54.9
Total Unmetered Spaces	856	55.2
Total On-Street Spaces	1,551 *	100.0
Off-Street Parking		
Commercial lots	304	21.7
Customer lots	421	30.0
Employee lots	537	38.3
Total Lot Spaces	1,262	90.0
Commercial Garage	100	7.1
Customer Garage	40	2.9
Total Garage Spaces	140	10.0
Total Off-Street Spaces	1,402	100.0
Grand Total (All Parking Spaces)	2,953*	

* Does not include reserved spaces (45)

Table 19

PERCENTAGE OF CARS PARKING FOR VARIOUS TIME PERIODS DURING AVERAGE WEEK DAY - CENTRAL BUSINESS DISTRICT

Port Arthur, Texas

Length of Time Vehicle Parked	On-Street			Off-Street		
	Metered		Unmetered			
	12 Minute	2 Hour	Unrestricted	Employee Lot	Customer Lot	Average
Less than 30 minutes	84	62	24	4	29	41
30 Minutes to 1 hour	5	22	8	8	18	12
1 Hour to 1½ hours	4	8	5	6	9	6
1½ Hours to 2 hours	1	3	1	4	6	3
2 Hours to 4 hours	4	4	14	27	12	12
Over 4 hours	2	2	48	51	26	26
Violations	16	6				

Note: Percentages below horizontal line indicate meter feeding or overtime parking.

Table 20

LENGTH OF TIME VEHICLES PARKED CENTRAL BUSINESS DISTRICT

Port Arthur, Texas

	Parking Category				
	1 Hour or Less	1-2 Hours	2-4 Hours	Over 4 Hours	Total
Percentage of cars parked	82.0	11.0	4.0	3.0	100.0
Average length of time per Parking category	0.62	1.15	2.6	7.0	-
Space hours parked per 100 vehicles	51	13	11	26	101
Distribution of spaces required per 100 cars parking	51	13	10	26	100

Table 21

SUMMARY OF ANSWERS TO CUSTOMER PARKING QUESTIONNAIRES

Port Arthur, Texas

How often do you usually come to the central business district?	
Every day	5
3 times a week	12
2 times a week	18
Once a week	28
Once every 2 weeks	37
	100

How do you usually come to the central business district?	
Bus	10
Walk	3
Drive own car	81
Ride with others	6
	100

If you drive, where do you usually park?	
On-street	81
Parking lot	17
Parking garage	2
	100

How long do you usually park in the central business district?	
1/2 Hour	18
1 Hour	42
2 Hours	29
3 Hours	8
4 or more Hours	2
All day	1
	100

How many blocks do you walk from where you park to your destination?	
1 Block	19
2 Blocks	39
3 Blocks	22
4 Blocks	8
More than 4 Blocks	12
	100

What part of your shopping do you do in the central business district?	
All	10
Most	29
Part	59
None	2
	100

Would you do more shopping in the central business district if:	
Less traffic congestion on streets between home and central business district?	17
Less traffic congestion in central business dist.?	20
Less time required to find a parking space?	44
Bus service were improved?	19
	100

Table 22

SUMMARY OF ANSWERS TO EMPLOYEE PARKING QUESTIONNAIRES

Port Arthur, Texas

Type of Business	Percent Answering Questionnaire
Store	18
Other Office	71
Industry	11
	100
Method of Travel from Home to Work	
Bus	4
Drive own car	81
Ride with others	15
	100
Where Do You Park?	
On-Street	43
Company lot	40
Commercial lot	14
Garage	3
	100
How Many Blocks do you Walk from Parking Space to Work?	
1 Block	37
2 Blocks	43
3 Blocks	15
4 Blocks	4
More than 4 blocks	1
	100

Table 23

PRESENT PARKING DEMAND IN STUDY AREA AS DETERMINED FROM VACANCY STUDY ANALYSIS CENTRAL BUSINESS DISTRICT

Port Arthur, Texas

Part I

	Existing Spaces According to Vacancy Rates							
	0-5 Percent		5-15 Percent		15-30 Percent		Over 30 Percent	
	Spaces		Spaces		Spaces		Spaces	
Areas	Studied	Used	Studied	Used	Studied	Used	Studied	Used
Core								
On-Street	67	67	109	101	106	83	23	16
Off-Street	0	0	34	31	0	0	0	0
Periphery								
On-Street	69	69	79	74	15	11	283	147
Off-Street	0	0	0	0	50	39	478	221
Fringe								
On-Street	60	60	57	49	96	76	553	194
Off-Street	0	0	0	0	0	0	89	53
Totals	196	196	279	255	267	209	1426	631

Total Spaces Studied	2168
Total Spaces Used	1291

PART II

SPACE REQUIRED TO ESTABLISH VACANCY LEVEL OF AT LEAST 15 PERCENT

Physical Division CBD	Vacancy Category	Spaces Studied	Increase Factor	Additional Space Needed
Core	0-5 Percent	67	15%	11
	5-15 Percent	143	10%	15
	Over 15 Percent	129	0%	0
				26
Periphery	0-5 Percent	69	15%	11
	5-15 Percent	79	10%	8
	Over 15 Percent	298	0%	0
				19
Fringe	0-5 Percent	60	10% *	6
	5-15 Percent	57	10%	6
	Over 15 Percent	549	0%	0
				12

Total Additional Spaces Needed (By Vacancy)	57
Loss of space in changing from diagonal parking to parallel parking	216
Estimated Additional Demand	273

* Reduced from 15% because the majority of these spaces are occupied by all day parkers, and as such the vacancy level need not be as high.

Table 24

SUMMARY OF PROPOSED PARKING FACILITIES
CENTRAL BUSINESS DISTRICT

Port Arthur, Texas

	Time Restriction			
On-Street	1 Hour	2 Hour	Reserved	Unrestricted
Core	151	76	-	
Periphery	-	196	20	171
Fringe	-	162	25	506
Total	151	434	45	677

Off-Street	Municipal	Private
Core	24	40
Periphery	346	563
Fringe	-	445
Total	370	1,048

Total On-Street Spaces	1,317
Total Off-Street Spaces	1,418
	2,735

FINANCIAL ANALYSIS OF PROPOSED PARKING PROGRAM
CENTRAL BUSINESS DISTRICT
Port Arthur, Texas

Estimated Annual Revenue

On-street Spaces	Restriction	Spaces	Rate	Day	Percent Occupancy	Annual Revenue Per Space	Estimated Annual Revenue
Core	1 Hr. Limit	151	10¢/Hr.	8 Hrs.	80	$192	$28,992
Core	2 Hr. Limit	76	10¢/Hr.	8 Hrs.	75	180	13,880
Periphery	2 Hr. Limit	51	5¢/Hr.	8 Hrs.	70	84	4,284
Periphery	2 Hr. Limit	117	5¢/Hr.	8 Hrs.	65	78	9,126
Periphery	2 Hr. Limit	36	5¢/Hr.	8 Hrs.	60	72	2,592
Fringe	2 Hr. Limit	142	5¢/Hr.	8 Hrs.	60	72	10,224
Total		573					$69,098

Estimated Annual Operation and Maintenance Costs

Collection, Maintenance, Repair and Policing of Meters:

On-street	573	@	$10 each	=	$5,730
Lighting and Maintenance of Lots	203	@	$10 each	=	2,030 (1st five years)
	167	@	$10 each	=	1,670

Estimated Annual Operation and Maintenance Cost: $7,760 (1st five years)
$9,430 (thereafter)

Estimated Acquisition and Development Costs

Meter Changes Required by Recommended Plan:

On-street

Change Existing Meters,	227	@	$10	=	$2,270
Install New Meters	28	@	$10	=	280
Remove Existing Meters	161	@	$10	=	1,610

Estimated Cost of Meter Changes $4,160

Off-street

Lots in Intermediate Program	Number of Spaces	Acquisition Cost	Construction Cost	Demolition	Total Cost
A	77	$29,120	$38,500		$67,620
B	32	25,680	16,000		41,680
C	70	59,120	35,000	$5,000	99,120
D	24	42,560	12,000		54,560
Total	203	$156,480	$101,500	$5,000	$262,980
Lots in Ultimate Program					
E	105	$29,840	$52,500	$10,000	$92,340
F	62	45,820	31,000		76,820
Total	167	$75,660	$83,500	$10,000	$169,160
Total Ultimate	370	$232,140	$185,000	$15,000	$432,140

SUMMARY

Annual Costs

	Intermediate	Ultimate
Amortization	$20,163	$33,136 ($76.68 per $1000 of total cost)
Maintenance	7,760	9,430
Loss of Taxes	6,842	10,437 (taxes collected in 1960 on property to be acquired)
Total	$34,765	$53,003

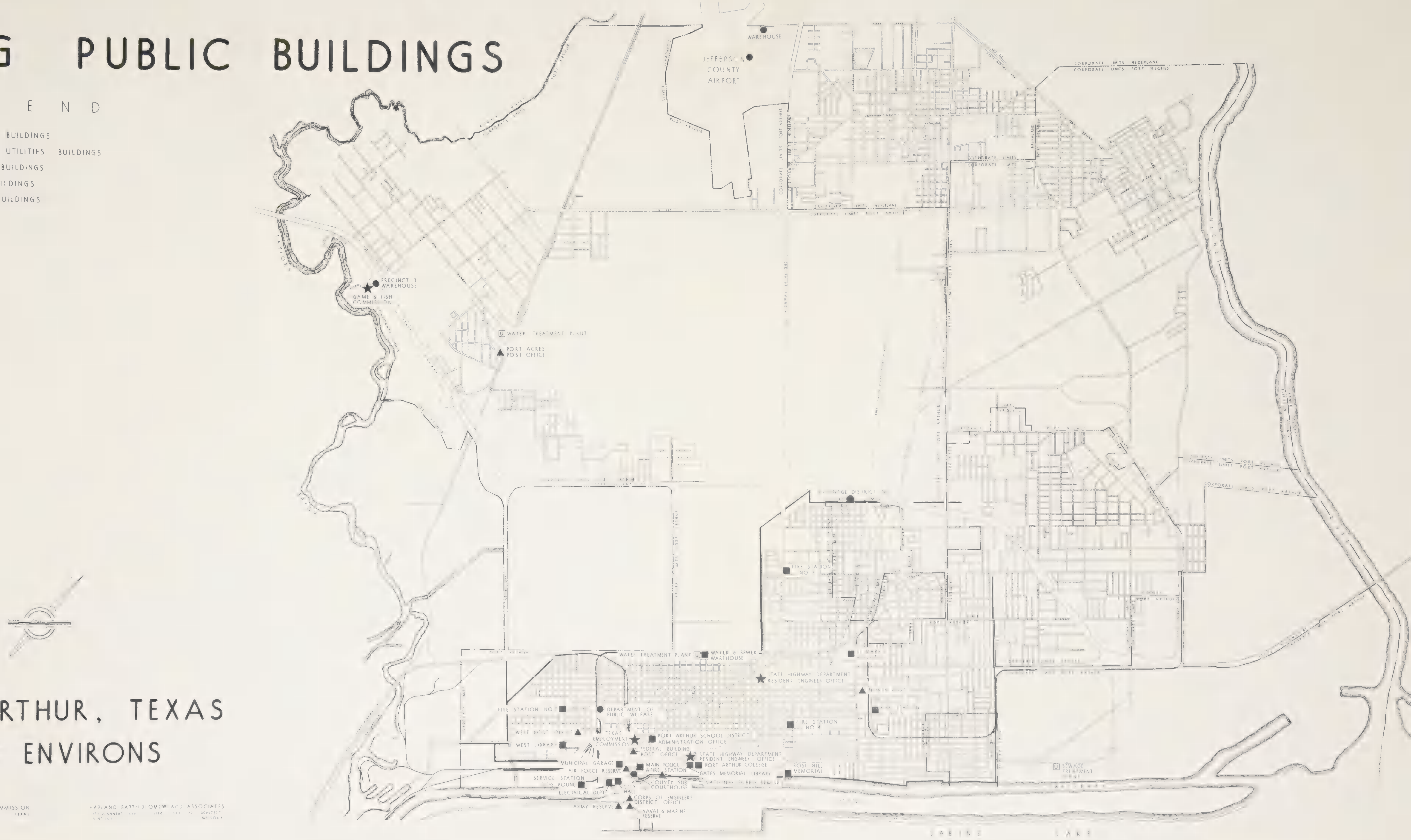
Estimated Annual Receipts From On-street Meters (5-Year Average)	$69,098
Annual Receipts From Present Meters (5-Year Average)	55,800
Estimated Annual Surplus Available for Parking Lot Program	$13,298

Estimated Annual Cost Intermediate Program	$34,765
Revenue Available From Surplus Parking Meter Receipts	13,298
Amount To Be Raised From Other Sources	$21,467 (Possibly from leasing lots)

EXISTING PUBLIC BUILDINGS

L E G E N D

- ■ MUNICIPAL BUILDINGS
- Ⓤ MUNICIPAL UTILITIES BUILDINGS
- ● COUNTY BUILDINGS
- ★ STATE BUILDINGS
- ▲ FEDERAL BUILDINGS



PORT ARTHUR, TEXAS
AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

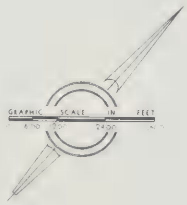
HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS CIVIL ENGINEERS AND ARCHITECT
SAINT LOUIS MISSOURI

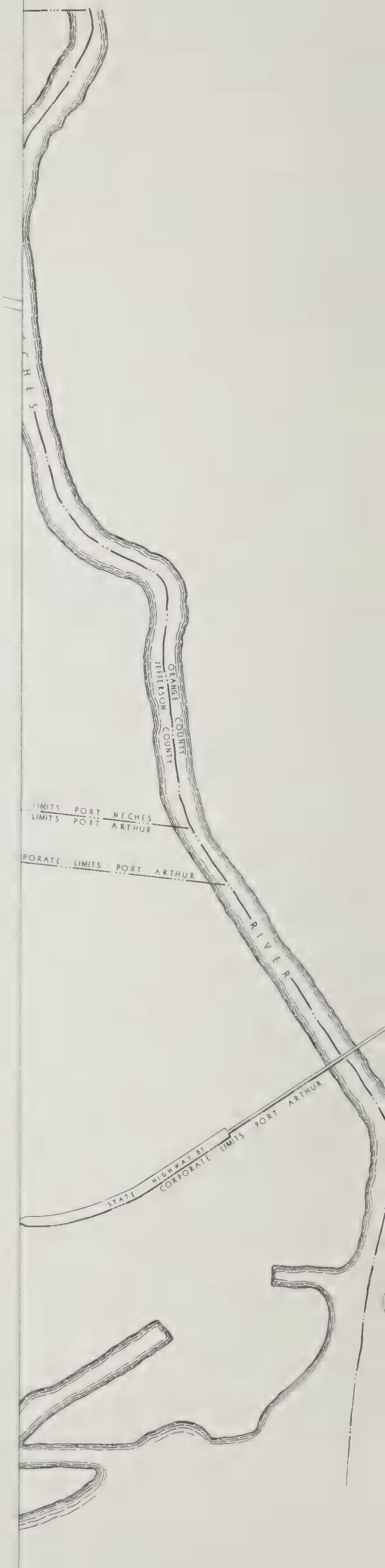
PLATE 31

EXISTING PUBLIC

LEGEND

- ■ MUNICIPAL BUILDINGS
- Ⓤ MUNICIPAL UTILITIES BUILDINGS
- ● COUNTY BUILDINGS
- ★ STATE BUILDINGS
- ▲ FEDERAL BUILDINGS





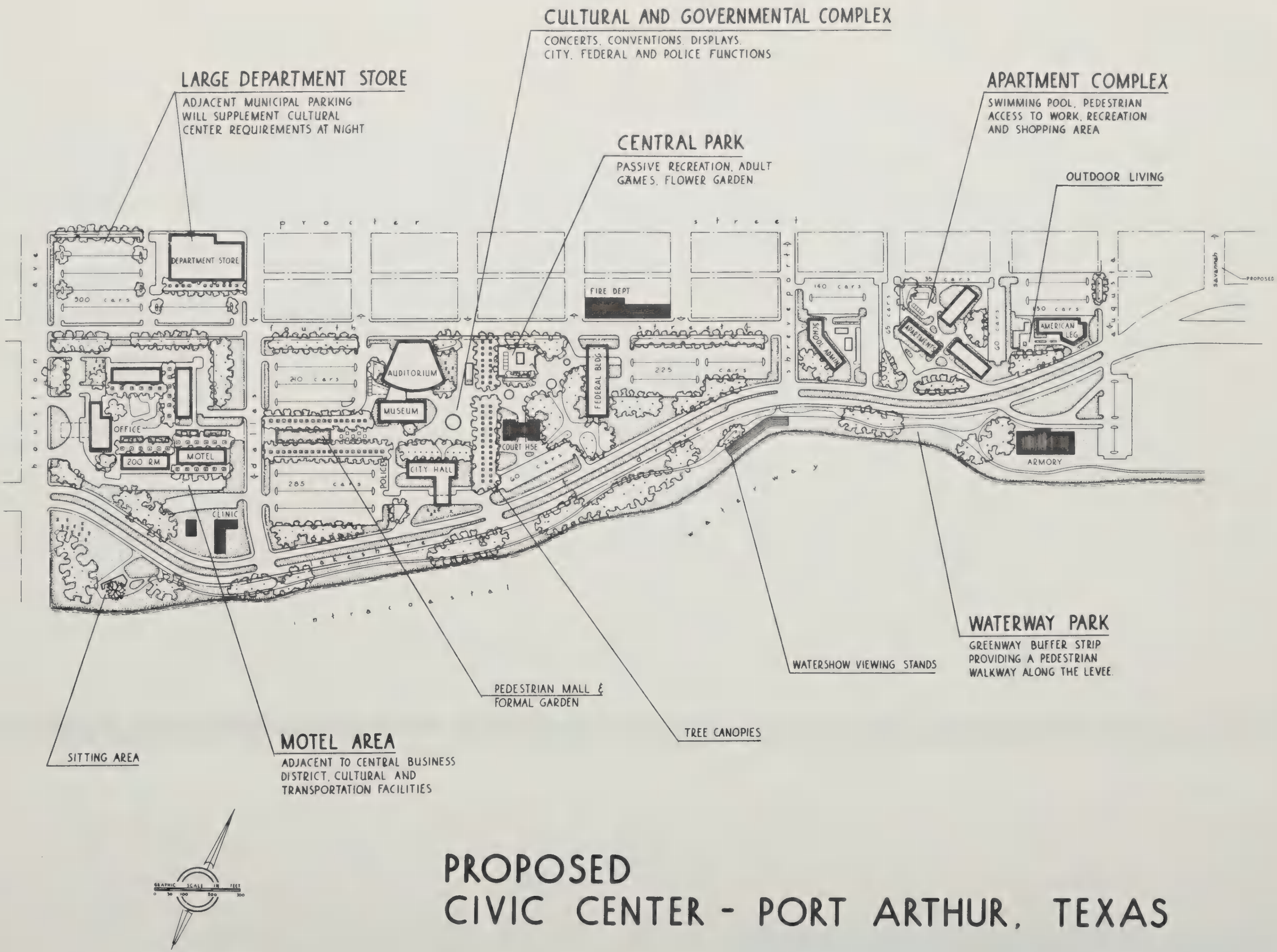
PORT ARTHUR, TEXAS AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS CIVIL ENGINEERS LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 31

PLATE 32



PROPOSED
CIVIC CENTER - PORT ARTHUR, TEXAS

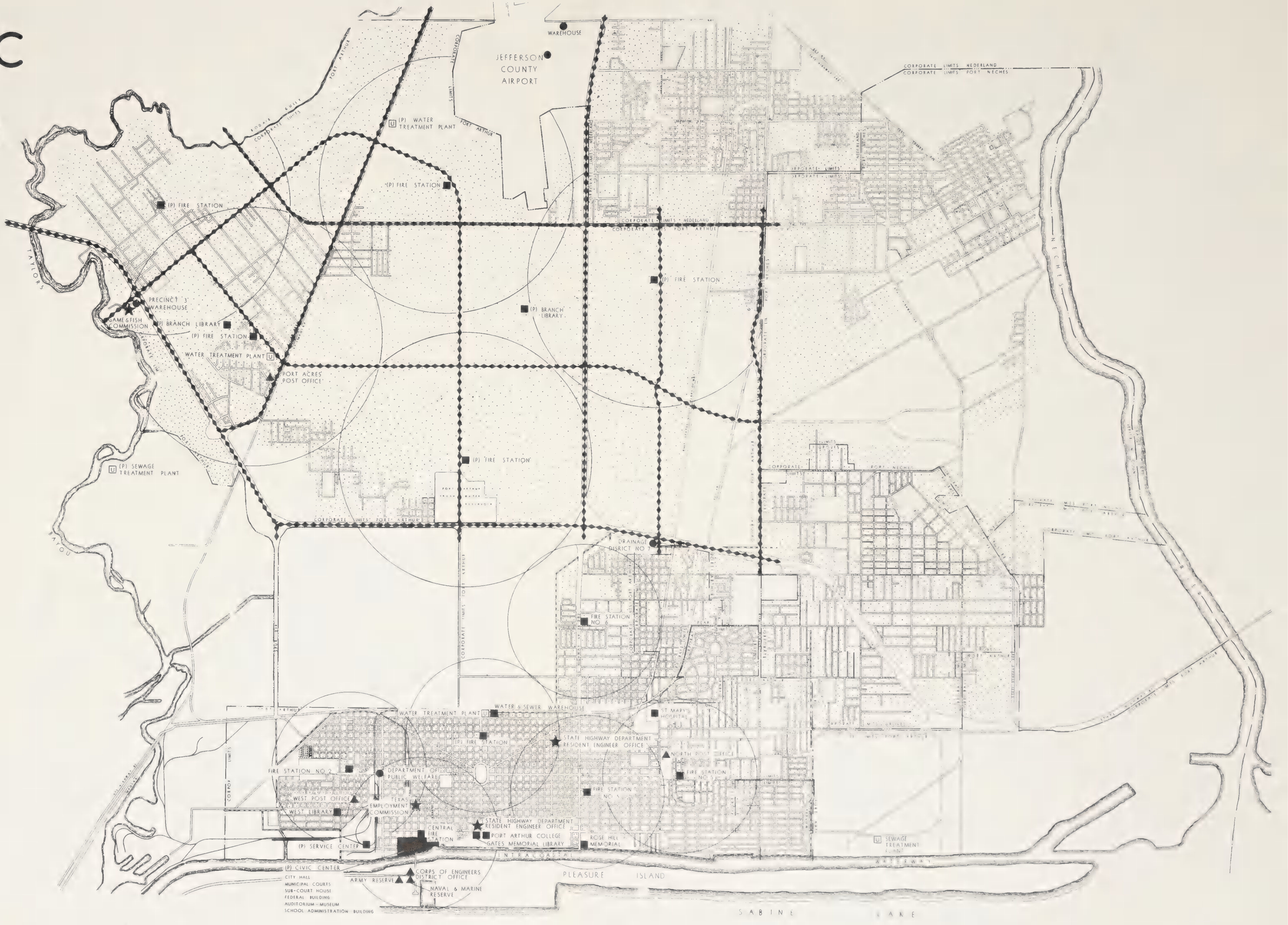
CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS, MISSOURI

PROPOSED PUBLIC BUILDINGS PLAN

LEGEND

- ■ MUNICIPAL BUILDINGS
- Ⓤ MUNICIPAL UTILITIES BUILDINGS
- ● COUNTY BUILDINGS
- ★ STATE BUILDINGS
- ▲ FEDERAL BUILDINGS
- ■ (P) PROPOSED BUILDINGS
- — 3/4 AND 1 1/4 MILE AREA OF SERVICE
- ◆◆ PROPOSED MAJOR STREETS
- • EACH DOT EQUALS 20 PERSONS – 1985



PORT ARTHUR, TEXAS AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

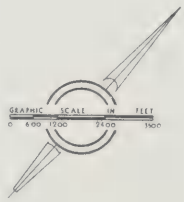
HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

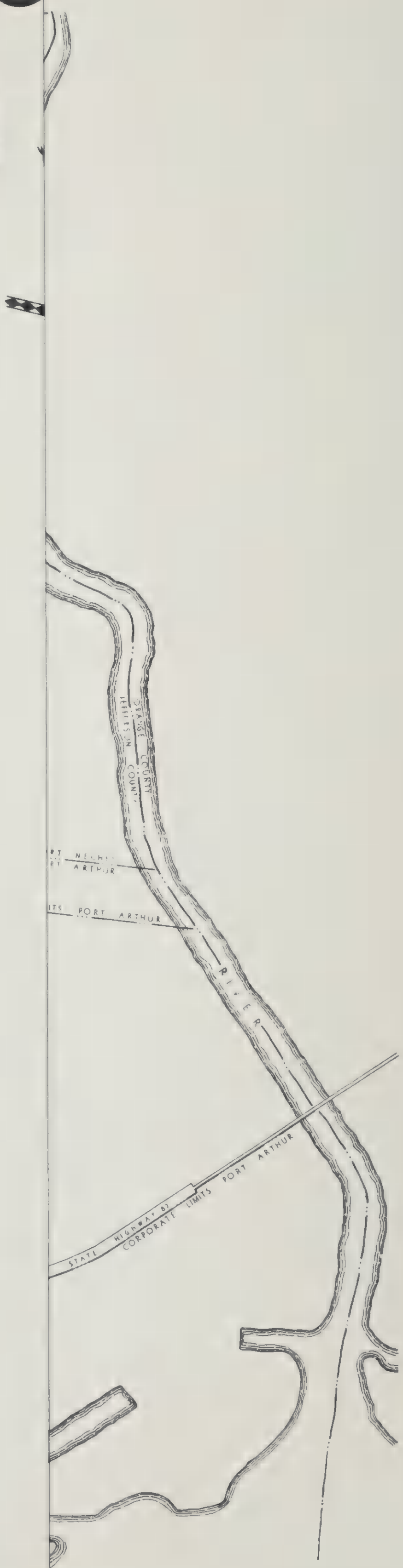
PLATE 33

PROPOSED PUBLIC BUILDINGS PLAN

LEGEND

- ■ MUNICIPAL BUILDINGS
- 🅄 MUNICIPAL UTILITIES BUILDINGS
- ● COUNTY BUILDINGS
- ★ STATE BUILDINGS
- ▲ FEDERAL BUILDINGS
- ■ (P) PROPOSED BUILDINGS
- — 3/4 AND 1 1/4 MILE AREA OF SERVICE
- ◆ PROPOSED MAJOR STREETS
- • EACH DOT EQUALS 20 PERSONS – 1985





PORT ARTHUR, TEXAS AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 33

PUBLIC BUILDINGS*

Existing Public Buildings

Exclusive of school and park buildings, there are 37 municipal, county, state and federal public buildings or groups of buildings within or near Port Arthur. The locations of all these buildings are shown on Plate 31.

Municipal Buildings

The various departments of the city government are presently occupying 19 buildings or groups of buildings. Three of these municipal building units are used for utility purposes. These are shown on Plate 31 as the sewage treatment plant and the two water treatment plants. Not included in the number of public buildings are water tanks or the numerous sewage lift stations throughout the city.

County Buildings

Jefferson County has five buildings within or in close proximity to the City of Port Arthur. They include the Sub-Courthouse, Drainage District 7 office, Precinct 3 Warehouse, the airport and a voting machine warehouse.

State Buildings

The State of Texas presently occupies four buildings within the city limits including the Texas Employment Commission, two Resident Highway Engineers' offices and the Game and Fish Commission office.

Federal Buildings

The federal government occupies five buildings in Port Arthur and leases space in two others. Federally owned buildings include the main Post Office and a branch post office, the National Guard Armory and the Army and Navy-Marine Reserve Centers on Pleasure Island. The government leases space for the Air Force Reserve facilities and a branch post office.

Public Building Requirements

Before long-range plans can be formulated for public structures, the city's needs for these structures must be determined.

---

*Preliminary Report, "Parking, Public Buildings and City's Appearance", dated June, 1961, Harland Bartholomew and Associates.

Civic Center

Municipal Buildings. The need for a new building to house all administrative offices of the city government is evident from the present disperal of these offices and the extremely crowded conditions prevailing. For economy of operation as well as convenience to the public, all administration department heads as well as all departments having direct contact with the general public should be in a central location. The present City Hall is not adequate to house all of these operations.

School Administration Office. These administration offices should be centrally located to serve the entire population and should be located in or adjacent to the civic center.

Municipal Garage. There is an urgent need for a central garage for maintenance, repair and storage for all city vehicles. At the present time, vehicle maintenance is performed in four separate locations.

Municipal Auditorium. The city's need for a large theatre and for a separate, large exhibition hall should be reviewed with the possibilities of combining these two different uses into one area or structure. Recent design methods and new techniques have made it possible to design an acoustically treated large auditorium with removable plush type seats, making it possible to provide a large level exhibition hall. Based on studies of the general seating capacity of municipal auditoriums in other cities, it is suggested that Port Arthur provide an auditorium with a seating capacity of approximately 5,000 persons. The auditorium should be provided with approximately 1,000 parking spaces located within walking distance of the building.

Fire Stations

The future requirements for fire stations in Port Arthur depend upon (1) the population to be served, and (2) the size of the various station service area. There are two main areas in Port Arthur which are presently without adequate protection. One is the area around 16th Street and Stilwell Boulevard and the other is in the Port Acres area. As the population increases additional stations will be necessary.

Libraries

A determination of Port Arthur's future library building requirements must be based on present and future population in areas of service, the geographic location of present buildings and such matters as book circulation and citizen registrations.

Port Arthur's relative position as compared with other cities in Texas in circulation and appropriations is shown below. Data is for 1959.

City	Amarillo	Wichita Falls	Waco	Port Arthur
Population	135,000	110,000	120,000	70,200
Budget	$148,945	$51,811	$77,117	$76,031
Appropriations Per Capita	$1.10	$0.53	$0.64	$1.08
Bookstock	82,582	58,431	73,188	51,042
Circulation	401,612	125,606	250,607	217,881
Circulation Per Capita	2.9	1.1	2.1	3.1
Staff	35	8	21	13.5

Although all of these cities are larger than Port Arthur, their circulation per capita is lower. Port Arthur ranks second only to Amarillo in the appropriations per capita.

Circulation has shown a steady increase since 1952 with the largest increase experienced between 1958 and 1960.

The library maintains a service to public school teachers whereby books are loaned for six weeks. Of the 12 elementary schools in the city, four are without libraries. To fulfill needs adequately, library facilities should be provided at all elementary schools.

County Buildings

Most of the existing county buildings are adequate at the present time. However, as the county population increases, certain changes will be necessary. Among the most important of these will be necessary additions to the Sub-Court House.

State Buildings

Employment Commission. The Texas Employment Commission has facilities located to the north of the central business district and these offices should be adequate for several years.

Highway Department. The Highway Department is presently located in two separate offices. For economy and efficiency of operation these facilities should be combined.

Federal Buildings

Because of the congestion and crowded conditions now evident in the existing Federal Building and the anticipated need for future office space as well as increased automation in the handling of mail, a new federal office building and post office should be planned for in the future. Because of the community-wide nature of the administration functions of these offices, they should be included in a civic center plan.

Criteria for Location of a Civic Center

A centralized grouping of public buildings has many advantages for the public. It facilitates the transaction of public business and the coordination of public agencies. In selecting a site for a civic center location, the following criteria should be considered:

> The civic center should (1) be located adjacent to but not within the central business district, (2) be accessible by public transportation facilities, (3) be readily accessible by major streets, and (4) should encourage the development of surrounding properties.

The location of the civic center adjacent to the central business district will not only help to stimulate business activity but will also stabilize the property values within the area.

Selection of the Civic Center Site

Following the criteria outlined, several sites have been analyzed to determine the best location for a civic center. Near the central business district, two possible locations were investigated. One of the sites was located to the north of the central business district and the other to the south of the area. After a careful analysis of the advantages and disadvantages of the two locations, the one adjoining the central business district to the south was chosen. Primary considerations leading to this choice were:

1. The area contains several important public buildings, including the Sub-Court House, the Municipal Building and the Health Center.

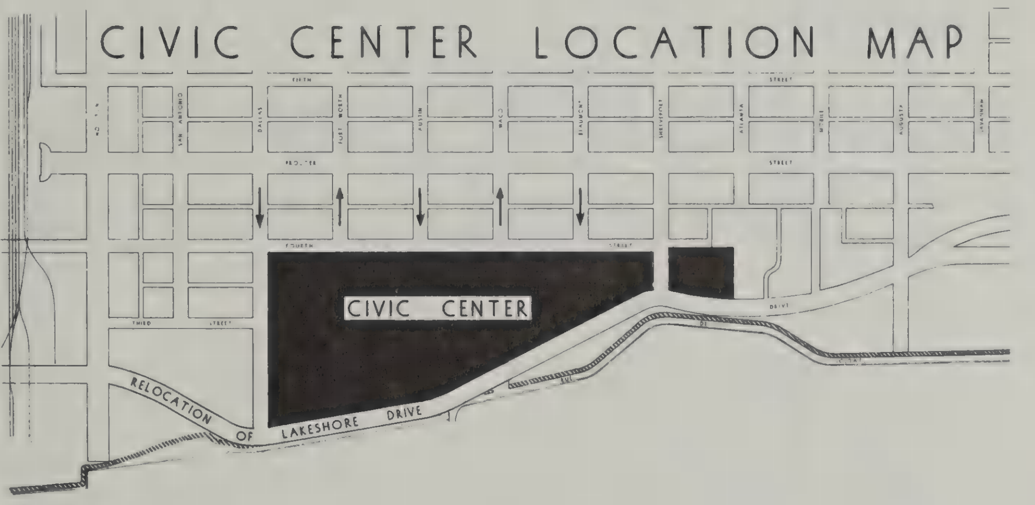
2. The cost of acquiring the necessary property would be relatively low as a substantial portion is publicly owned and prevailing private development is residential.

3. Adjoining the Intracoastal Canal, the area possesses great possibilities for capitalizing on the scenic values of a waterfront location as well as taking advantage of the activities which take place on the waterway and adjoining Pleasure Island.

4. Accessibility by bus or private automobile is excellent from any part of the city.

5. A certain amount of substandard housing would be eliminated.

6. Private development adjoining the area would be stimulated, thus increasing the tax base, and providing economic strength to the central business district.



As shown in the above sketch, the proposed civic center site is located between Dallas and Atlanta Avenues and between 4th Street and Lakeshore Drive and contains approximately 10 acres.

Proposed Public Buildings

Proposed Civic Center Plan

The proposed civic center plan is presented on Plate 32. In addition to the public building grouping, a suggested development plan for adjoining areas to the north and south is shown. Following is a description of the proposals.

The civic center plan is based upon the concept that the needed public buildings should be arranged in a group in a park-like setting which would provide adequate off-street parking, convenient vehicular access, and convenient pedestrian circulation between buildings and all through the area. The proposed building group is near the center of the site with the bulk of the off-street parking provided at the north and south ends, much of which would adjoin 4th Street and would be readily convenient for parking associated with the central business district. One of the main features of the plan is the relocation of Lakeshore Drive which would be moved southwardly to increase the area needed for the civic center and to take better advantage of the adjoining Intracoastal Waterway.

The suggested public buildings comprising the group include the County Sub-Court House building and the City Health Clinic which would remain at their present location. New buildings include the Federal Building, a new City Hall and Police Station, a new Auditorium and Museum and a new School Administration Building. The building now occupied by the Fire Department and Police Department would remain in its present location but would be used exclusively by the Fire Department after the City Hall is constructed.

City Hall and Police Headquarters is proposed to house all municipal administrative offices of the city government and, in a separate wing, the police headquarters, municipal courts and city jail.

Auditorium-Museum constructed as a multi-purpose facility building providing for various purposes including exhibitions, conventions and sporting events, as well as musical and theatrical productions, graduation exercises and other public gatherings. Several small meeting rooms should be provided so designed as to permit their conversion into a larger room for displays and other meetings. Large shows and exhibitions could be accommodated by equipping the main floor with portable theatre-type seats. The proposed museum which would adjoin the auditorium to the south would provide facilities for a permanent art gallery and museum and for temporary exhibitions of various kinds.

Federal Building as a replacement for the present building to house all local federal offices and main post office facilities.

School Administration Building to be constructed on the east side of Shreveport Avenue at the intersection of 4th Street. While this building is somewhat separated from the main center, it is convenient to the City Hall and other public buildings and would be well located to fulfill its functions. A parking area with a capacity of 140 vehicles would be provided between Shreveport Avenue and Atlanta Avenue.

In addition to the proposed civic center the plan suggests certain developments designed to stimulate economic activities in the central business district. At the east end of the area a grouping of apartments is suggested which would overlook the Waterway and would be within walking distance of the central business district, thus making it attractive to people working in the area. The group of three buildings would be provided with ample off-street parking, would contain a swimming pool and would be attractively landscaped. At the west end of the area it is proposed that a 200-room motel be constructed, which would occupy all of the area between 4th Street, Lakeshore Drive, Houston Avenue and Dallas Avenue except for the two small clinic buildings which would remain as part of the public building group. This motel will supply a great need for the downtown area and could be made into a most attractive asset for the civic center. Persons staying at the motel would be within easy walking distance of the auditorium which would be reached by a pedestrian mall on either side of a formal garden. North of the proposed motel it is suggested that a department store be built. This type of retail center is entirely lacking in the central business district and would probably do more than anything else to attract people to the area.

The civic center plan has been designed so that it can be carried out by stages. The first building which should be constructed would be the City Hall followed by the Federal Building and School Administration Building. The Municipal Auditorium and Museum would be last to be built. The entire project should be completed within 10 years.

Proposed Public Buildings Plan

The location for all proposed public buildings in the city is shown on Plate 33. The location of the civic center as previously discussed is also shown. The proposed major street system for the undeveloped area of Port Arthur north of State Highway 73 is indicated to show the important relationship between public buildings and major streets.

Municipal Service Center. In the interest of economy and efficiency it is recommended that a site of not less than five acres be acquired on the north side of Lakeshore Drive adjacent to the present service center and that all mechanical servicing and storage of public equipment be carried on in the new location.

Electrical Department. This department should be moved into the new City Hall along with the traffic engineering department. The sign shop should be moved to the Service Center.

Water and Sewer Warehouse. It is proposed that this building be extended over the existing drainage ditch to the rear in order to increase the size of the structure. Although bridging this ditch will be expensive, the site is not large enough to permit expansion in any other manner. Proper storage methods should be initiated in order to better use the rather small pipe storage yard.

Fire Stations. The proposed public buildings' plan suggests two new fire stations. One, located in the Port Acres area, has been under consideration for some time and construction is currently under way. The second proposed station should be located near 16th Street and Stilwell Boulevard. A new station to serve this area was recommended in a 1948 report by the National Board of Fire Underwriters.

Libraries

As mentioned previously, no immediate changes appear to be necessary with respect to the main library. The branch library located on West 7th Street should be increased in size to provide a higher level of service. The Port Acres area is presently being served with library facilities by a County Bookmobile. While this is an undesirable situation, the density of population does not warrant a permanent library facility at this time.

County Buildings

Jefferson County Airport. No change is proposed for the runways at this time. However, the taxi aprons and terminal facilities may need expansion in the near future.

Sub-Court House. Although there are a few areas in this building which need additional space, no changes are anticipated in this structure in the near future.

Department of Public Welfare

The facilities are very crowded at present. Steps should be taken to expand or relocate this operation in a new and larger building.

State Buildings

Texas Highway Department. The department is presently negotiating for a site which would combine the operations of the two existing offices. As yet the location of this site has not been made public.

Federal Buildings

With the exception of the federal building proposed in the civic center plan and the existing military reserve buildings, no additional federal buildings are proposed. However, as the city grows, additional branch post offices will be required. These should be located in or near major shopping areas for maximum service to the community.

As with other phases of the Comprehensive Plan, these public buildings represent a large expenditure of public funds and are not anticipated to be undertaken as one mass building program. The construction should be programmed to meet the needs of a growing community and an expanding economic base.

ENTRANCES TO THE CITY

GOOD ENTRANCES

CREATE FAVORABLE IMPRESSIONS
OF THE CITY

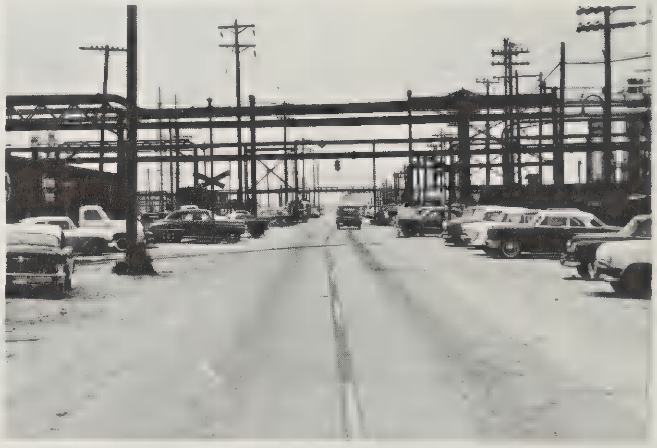
U.S. HIGHWAY 69, 96, 287 NORTH

STATE HIGHWAY 73 WEST

POOR ENTRANCES

CREATE CONFUSION AND
TRAFFIC HAZARDS

STATE HIGHWAY 87 EAST



STATE HIGHWAY 87 WEST

SCHOOL BUILDINGS

THOMAS EDISON

BOOKER T. WASHINGTON

SCHOOLS NEED BETTER SITE IMPROVEMENTS

LINCOLN

THOMAS JEFFERSON

PUBLIC BUILDINGS

CITY HALL

FEDERAL BUILDING

COUNTY SUB-COURT HOUSE

FIRE STATION NO. 6

SEMI - PUBLIC BUILDINGS

ST. MARYS HOSPITAL

PORT ARTHUR COLLEGE

ST. GEORGE EPISCOPAL
CHURCH

MEMORIAL BAPTIST CHURCH

PARKING LOTS

GOOD DEVELOPMENT

PROVIDES CONVENIENCE, SAFETY AND INCREASES VALUE OF ADJACENT PROPERTY

POOR DEVELOPMENT

CREATES DUST, POOR CIRCULATION AND DRAINAGE PROBLEMS IN WET WEATHER

THE CITY'S APPEARANCE*

The general appearance of any city is the responsibility of all of its citizens. Community spirit lends force to public opinion which can demand conformance by individual property owners to a reasonably high standard of orderliness in the appearance of their premises. The same spirit is manifested by an interest in the local government and insistence upon the proper performance of services designed to maintain or improve the city's appearance.

More than one-half of Port Arthur's developed land area is devoted to private property uses, such as residential, commercial and industrial. Thus, except for the influence of public controls, such as zoning, property owners are directly responsible for the appearance of the greater part of Port Arthur, while the streets, schools, parks and public buildings primarily are within the province of local government.

Appearance of Public Property

Maintenance of public grounds and buildings in an attractive manner should serve as a good example for private owners to follow in improving the appearance of their property. If the public areas are unattractive and poorly maintained, then private property usually suffers in both appearance and value.

Streets and Rights-of-Way

In Port Arthur, over six percent of the total and more than 41 percent of the developed city area is dedicated to public streets and rights-of-way. Poorly maintained streets provide an unattractive setting for and detract from all abutting property both public and private.

Major Streets. The citizens of a city spend the greatest part of their travel time on such thoroughfares. Especially important is the appearance of the highway entrances to the city as here the visitor gains his first impression of the community. Plate 34 shows how some of the entrances to Port Arthur look to the motorist approaching the city.

U.S. Highway 69, 96, 287 approaches the city from the north and as yet is relatively unspoiled by unsightly billboards and scattered development. As the motorist passes the levee north of 39th Street he can see two of the more attractive subdivisions in Port Arthur. However, to preserve the quality of this approach north of the levee, strict enforcement of the zoning and building ordinances will be necessary to prohibit unsightly development.

---

*Preliminary Report, "Parking, Public Buildings and City's Appearance", dated June, 1961, Harland Bartholomew and Associates.

State Highway 87 approaching the city from the east offers the motorist a rather impressive view of Port Arthur and the surrounding area from atop Rainbow Bridge. However, the view changes rapidly as the motorist approaches the city along a highway lined with unsightly commercial and industrial uses and a profusion of signs and billboards. The future improvement of this route as planned will facilitate the movement of traffic, but other measures will be needed to prevent further unattractive use of the frontage.

State Highway 87 approaches the city from the west and south and is perhaps the most confusing and unimpressive entrance to Port Arthur. This road which passes through the Gulf Refinery is also scheduled for reconstruction throughout its length from Taylor's Bayou to Spur 214. It is to become a four-lane divided facility and will undoubtedly improve the appearance of this entrance to Port Arthur.

On major streets in Port Arthur where the rights-of-way are wide enough, tree planting in front of commercial and industrial properties should be undertaken. Gradual elimination of poles and wires should be planned. Encroachments on the right-of-way from temporary storage purposes should be prohibited.

Residential Streets. To be attractive, residential streets should be paved and provided with properly designed curbs and gutters, sidewalks, street trees, street lighting and markings. Poles and wires should be located on easement to the rear of the lots. The following standards should generally be observed.

1. Curbs and Gutters. The use of curb and gutter in the development of a subdivision is one of the best ways to assure good appearance, high standards of maintenance and stability of value. Curbs are needed on all streets to permit adequate all-weather surfacing, provide proper storm drainage and to forestall parking in the strip between road and walk.

2. Sidewalks. In residential areas, sidewalks are of prime importance for general appearance and should be constructed when a relatively high density of development exists. Sidewalks not only improve the appearance of a street but are a great safety factor in keeping children and pedestrians off the traveled roadway.

3. Street Trees. The planting of street trees is one of the best ways to improve the city's appearance. Treeless residential areas have many obvious disadvantages such as barren appearance, excessive erosion, lack of shade, etc. It is the responsibility of the city to plant and maintain trees located in the public right-of-way. Uniformity of trees as to type, height and spacing is essential in order to obtain good appearance. Also, continuous maintenance is necessary if the trees are to survive and maintain an attractive appearance.

   The strip of ground between the roadway and the sidewalk should be not less than five feet wide if trees are to be planted. It is more desirable to plant the trees on the outside of the sidewalk, but still within the public right-of-way. In new subdivisions tress should be planted in this manner prior to the development of individual lots. Owners often plant grass, shrubs and flowers in the park strip which makes it difficult to put in a uniform row of trees. Trees in the right-of-way on the outside of the walk should be at least three feet from the walk.

   Contractors and property owners should not be permitted to plant trees in the public right-of-way. Such trees are often of an improper species that do not withstand gas, smoke and dryness and tend to crack sewer mains. They are seldom uniformly placed and usually are not properly maintained. If the city creates an ordinance preventing private property owners from planting trees in street rights-of-way, it should at the same time adopt a tree planting program.

4. Street Signs and Markers. The street markers used in Port Arthur are of a satisfactory type although difficult to read at night. However, being of concrete they are nearly vandal-proof and require little maintenance.

5. Street Lighting. Generally the street lighting in Port Arthur is adequate. Lighting methods vary throughout the city with metal standards being dominant in the newer areas or areas where lighting improvements have recently been made. Other sections have metal brackets on existing utility poles. The city has in the past few years approached the problem with interest and the lighting in several areas of the city has been vastly improved. It is strongly recommended that this program be continued.

6. Poles and Wires. The appearance of a street is substantially enhanced when utility poles and wires are located in the rear of the lots. Recent development in Port Arthur has followed this pattern and should be followed in the future. However, in the older areas of the city where poles and wires are already established, they should eventually be relocated in the alleys or in rear easements.

   In the central business district, the control of poles and wires has been satisfactory for the most part. Most of these poles and wires are located in alleys which is certainly more desirable than along the streets. However, the eventual removal of all unnecessary poles and the underground placement of all wires would be a major improvement.

7. Garbage Collection. The practice of placing garbage cans at the curb for garbage pick-up is certainly a practice which detracts from the appearance of a residential area. Many cities pick up garbage and trash from the rear of lots even though no alleys are provided. This practice should be undertaken in Port Arthur also.

Parks

Properly designed and well-maintained parks greatly add to the appearance of the city and are valuable assets to the community.

As pointed out previously, Port Arthur lacks adequate park facilities. With practically no neighborhood park facilities, the people must rely on Pleasure Island. A detailed program or proposed plan for the future development of Pleasure Island should be prepared at the earliest possible date if the Island is to be developed to its maximum potential. A program should be initiated immediately to acquire property for neighborhood parks.

Schools

School buildings have undergone a transition of design in recent years. The exterior appearance has changed from the imposing institutional type to the open and informal facility. Thomas Edison and Lincoln are examples of the older type of design and are shown on Plate 35. Booker T. Washington and Thomas Jefferson are examples of the new trend.

Although most of the school structures are pleasing in design and appearance, the grounds around the buildings are almost devoid of any landscape treatment. The improvement of these sites should be the responsibility of the school district and a concern of the entire city. School buildings are generally a focal point in a neighborhood and a pleasing appearance both architecturally and esthetically is essential in improving the appearance of the neighborhood.

Public Buildings

Views of the City Hall, County Sub-Court House, Federal Building and Fire Station No. 6 are shown on Plate 36. All of the sites are well-maintained. The size of the Fire Station and Sub-Court House sites is adequate but the others are relatively small. The proposed civic center incorporates the Sub-Court House and suggests new locations for the City Hall and Federal Building which would increase the size of the sites considerably. The architectural design of all new public buildings should be subject to a review by a competent agency, such as the Planning and Zoning Commission, before final plans are prepared.

Appearance of Private Property

As in all cities, private buildings comprise the greatest majority of structures in Port Arthur. They also occupy the greatest part of the developed land in the city. Thus, the appearance of private property exerts a major influence on the general appearance of the city.

Residential Areas

Residential uses comprise nearly 38 percent of the total developed areas of Port Arthur. Therefore, it is apparent that the care and upkeep of residential property will have considerable influence on the city's appearance. The most effective means of maintaining owner-occupied and rental residential structures in good condition is through organized neighborhood groups.

In areas where the beginning of blight is evident, or where areas have degenerated to slums, more drastic measures are necessary. A major tool in improving residential and blighted areas is the Building and Housing Code and associated ordinances. The enforcement of these codes and ordinances will help to improve the city's appearance.

Semipublic Property

The outstanding features of many cities are their semipublic buildings and grounds, such as colleges, hospitals, institutions and churches. A few of Port Arthur's many semipublic structures are shown on Plate 37. It is important that semipublic, as well as public, buildings have an ample setting to properly display the buildings. Many of Port Arthur's churches could use larger and improved settings. New churches will wisely acquire a large site.

Commercial Property

The Central Business District. In Port Arthur as in all cities, the central business district is the most traveled, viewed, walked about, shopped and visited section of the city. A large percent of residents and visitors travel to this area each day. It serves as the retailing, wholesaling and banking center of the city. Its ability to serve depends upon the particular uses and such factors as access and parking. The appearance of this area is a major consideration and will to some extent determine its future.

The appearance of Port Arthur's central business district as to streets and lighting is well above average. The general appearance of buildings is probably below average. Vehicular access must be improved. The proposed parking plan will also improve this area's ability to function efficiently.

The appearance of many private buildings leaves much to be desired in the downtown area. Many of these structures are old and antiquated. Several buildings in the past few years have undergone a face-lifting with the construction of new facades. However, in several such instances, the first floor only was improved, leaving poor appearing, dirty, dilapidated upper stories in view. The clean uncluttered appearance of new shopping centers place the central business district in a very poor light.

Outlying Commercial Districts. Recently, the trend has been toward the development of compact related groupings of stores or shopping centers with ample circulation and parking space, situated well back from a major street. These modern commercial developments improve the appearance of the city, concentrate buying power and provide more economical use of the land. A section of the proposed zoning ordinance will encourage the development of shopping centers in Port Arthur under carefully controlled conditions.

Signs and Billboards

The use of signs and billboards is an inexpensive, direct and effective means of advertising. However, poorly designed, located and maintained signs are detrimental to the city's appearance and often defeat their own purpose.

The detrimental effects of inappropriately located billboards have in the past resulted in severe limitations of their use in many communities. The proposed zoning ordinance prohibits their use in all residential districts but allows their use in local commercial districts under certain restrictions.

Overhanging Signs. The use of overhanging signs in central business districts is prevalent in the majority of American cities. It is doubtful if the merchants receive full advertising value from such signs as they obstruct each other's visibility and thus cannot readily be seen from a distance.

Parking Lots

The use of unsurfaced and unimproved vacant lots for parking purposes often produces unsightly conditions and creates objectionable dust. Plate 38 shows two well designed areas that are improved with surfacing, the lanes and stalls are marked and one is provided with lighting equipment. Entrances and exits are clearly marked. The other two photos on Plate 38 show inadequately improved parking areas. Circulation is difficult when occupancy approaches capacity, surface conditions are bad in wet weather and their appearance leaves much to be desired.

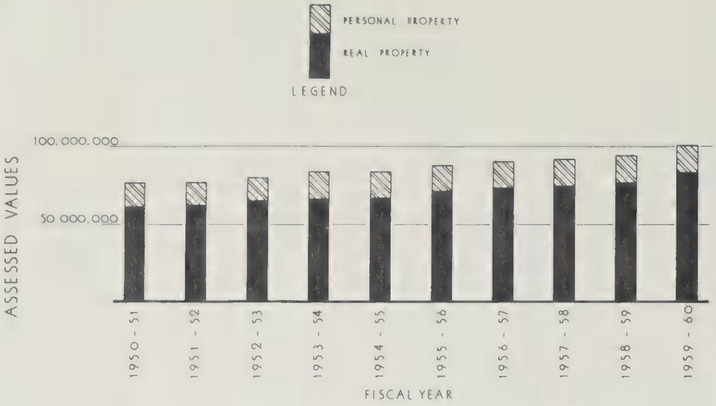
Industrial Property

New industrial plants in recent years have been erected on large sites and have provided grassed areas, landscaping and a very attractive setting. Some cities have required owners of open storage uses to put up fences and screen planting to improve their appearance.

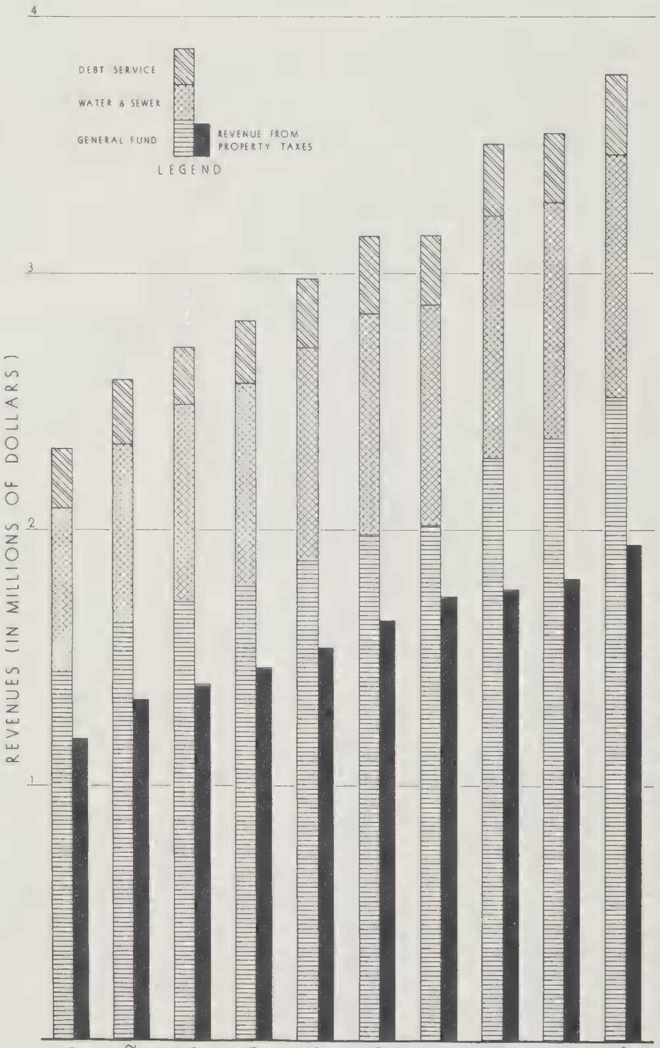
A few of Port Arthur's industries have made reasonable attempts to improve their appearance. For many others, because of their size or nature, extensive changes would be difficult. However, there are many existing buildings and especially open storage areas whose appearance could greatly be improved.

It is recommended that an ordinance be adopted requiring that all auto-junk yards, industrial storage areas and other similar storage facilities be fenced with a wood or sight blocking fence at least six feet in height, and that these fences be properly painted and maintained.

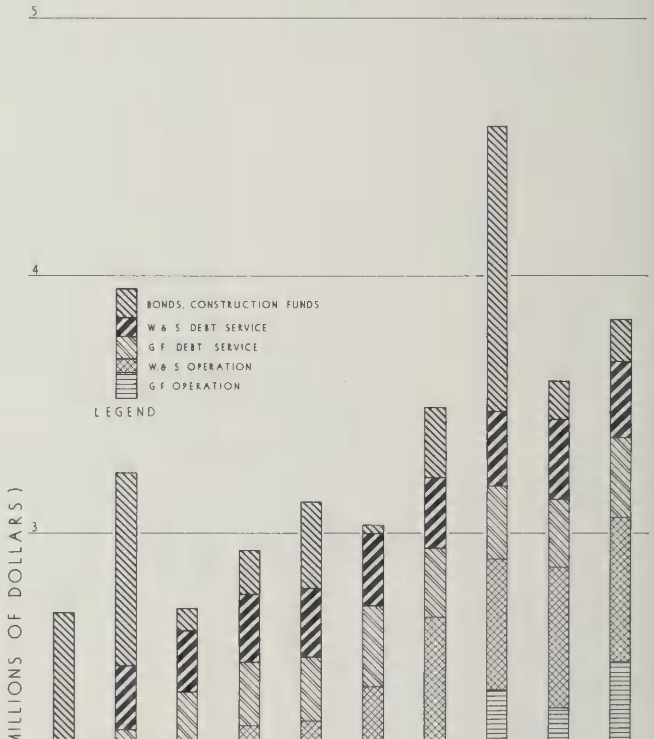
PAST TRENDS IN MUNICIPAL FINANCES



TREND IN ASSESSED VALUES



TREND IN REVENUES



TREND IN EXPENDITURES

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

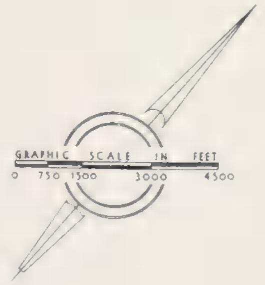
HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

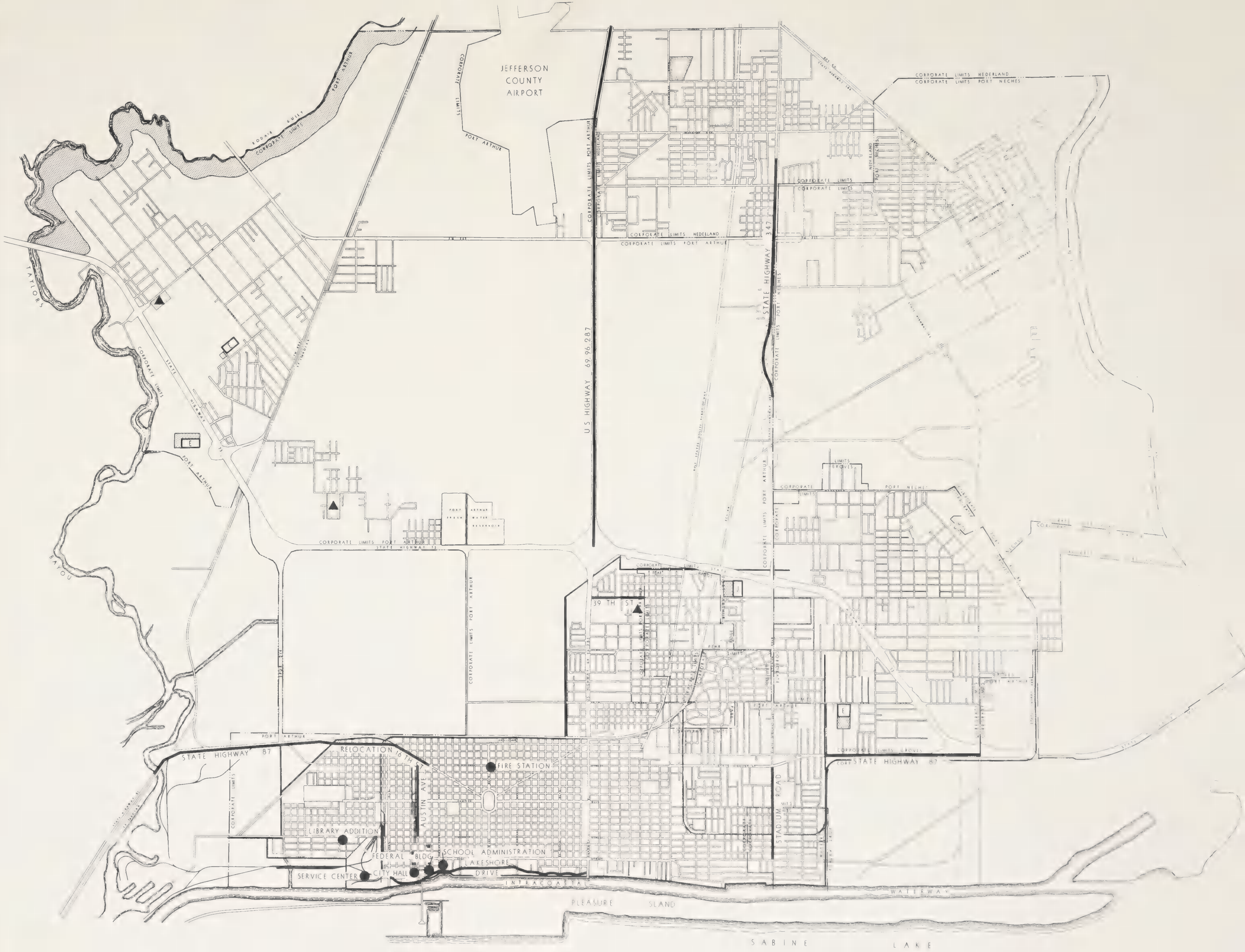
PLATE 39

CAPITAL IMPROVEMENT PROGRAM

LEGEND

- ▬ MAJOR STREET
- ▨ PARK
- ☐ NEW SCHOOL
  - E - ELEMENTARY
  - J - JUNIOR HIGH
- ▲ ADDITIONS TO EXISTING SCHOOL
- ● PUBLIC BUILDING
- ▬ OFF-STREET PARKING FACILITY





PORT ARTHUR, TEXAS AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

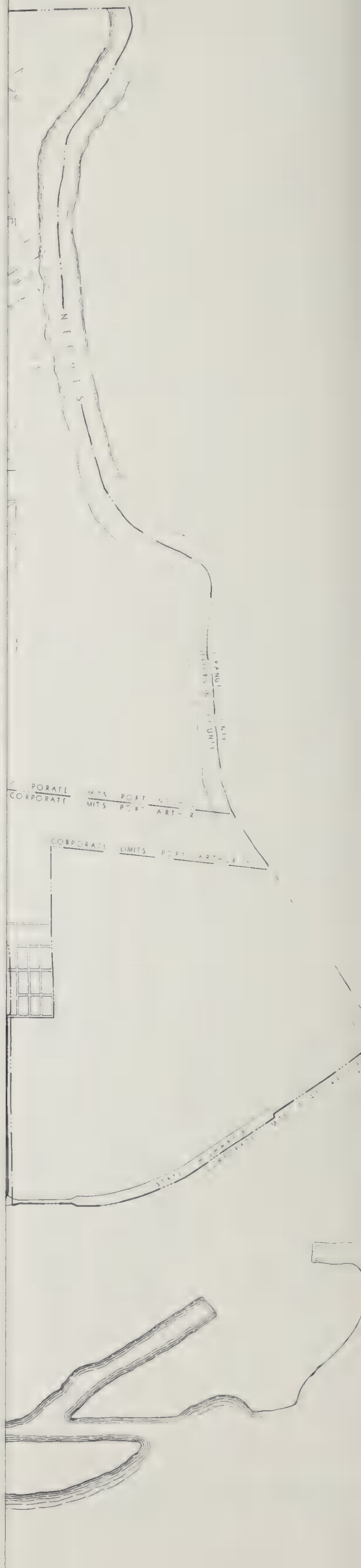
HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

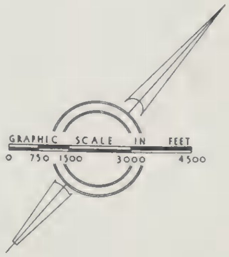
PLATE 40

CAPITAL IMPROVEMENT PROGRAM

LEGEND

━ MAJOR STREET
▨ PARK
☐ NEW SCHOOL
  E - ELEMENTARY
  J - JUNIOR HIGH
▲ ADDITIONS TO EXISTING SCHOOL
● PUBLIC BUILDING
▬ OFF - STREET PARKING FACILITY





PORT ARTHUR, TEXAS AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS, CIVIL ENGINEERS, LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

PLATE 40

PUBLIC WORKS*

The Comprehensive Plan has been designed to facilitate and guide the systematic and economical provision of public improvements in Port Arthur over a long period of time. From the reservoir of accumulated community needs, revealed by the planning studies, projects of greatest priorities must be selected and included in a program that is geared to the financial ability of the city to carry it out.

Improvements which are instrumental in directing the physical development of the community should not be constructed without financial planning or priorities, any more than their location should be determined without a plan. The City Planning and Zoning Commission is the logical agency to evaluate all of the city's needs for public improvements and to develop the program to carry them out.

Individual public works projects are most economically developed when they are a part of an over-all planned program. Priorities can then be determined with a thorough awareness of all urban needs and projects selected that would be most beneficial to the greatest number of persons. Unless all public improvement needs are studied together, considerable waste could result.

It has become standard practice for a long-range public works program to be prepared as an integral part of the over-all community plan, and a number of states require the planning agency to prepare the public works program for consideration by the governing body.

Financial Analysis

In order to develop a program for capital improvements, it is necessary to review the past financial operation of the municipality and other agencies concerned with the improvements recommended in the Comprehensive Plan. Trends in revenues, expenditures, property values, tax rates and bonded debt will give some indication of the future fiscal condition of the community and will assist in determining how extensive a public works program can be planned. Table 26 and Plate 39 have been prepared to show the trend of municipal revenues and expenditures for the period 1950-60.

General Fund

Revenues. The General Fund revenue from property taxes has averaged 66.8 percent of total revenues since

---

*Preliminary Report, "Public Works and Administration", dated August, 1961, Harland Bartholomew and Associates.

1950-51. During this period the actual amount of revenue from property taxes has increased 69.3 percent from $962,800 to $1,629,500. Total revenue to the General Fund has increased 73.8 percent from $1,447.5 in 1950-51 to $2,515.5 in 1959-60.

Expenditures. Total expenditures in the last 10 years have increased approximately 88 percent as shown on Table 1. The two categories commanding attention in this increase are Public Safety and Insurance and Employee Benefits.

During four of the 10 years the General Fund expenditures have exceeded revenues. However, the over-all balance of the General Fund shows that total revenues have exceeded total expenditures during the period.

Investments in Fixed Assets

Investments in Fixed Assets or Capital Outlay represent funds expended for permanent improvements. Revenues for these expenditures are generally derived from bond sales. Table 26 shows that the expenditures from bond sales and construction funds has averaged 53.9 percent of total expenditures for the past 10 years. The largest outlay occurred in 1957-58 when $1,110,300 was expended for street and drainage improvements.

Interest and Redemption Fund

Approximately 99 percent of the revenue for this fund is obtained from property taxes. This fund is used to pay principal and interest on outstanding bonds. From the $1.90 property tax this fund receives $0.32, while the remaining $1.58 is allocated to the General Fund. The expenditures from this fund have exceeded the revenues in five of the last 10 years. These shortages, of course, are paid from the surplus accumulated from previous years which is invested in securities.

Water and Sewer Fund

The revenue obtained from water sales has averaged 74.3 percent of total revenue for this fund since 1950-51. The percentage of revenue received from sewer service has remained almost constant at 20 and 21 percent during this 10-year period.

All seven categories of expenditures have remained practically constant during the 1950-51 to 1959-60 period.

The Water and Sewer Fund Capital Outlay has averaged almost 10 percent of total expenditures for this fund, while the Debt Service has accounted for an average of almost 32 percent of the expenditures in this fund.

Port Arthur Independent School District

Table 27 was prepared to show the trend in revenues and expenditures for this taxing agency over the past 10 years. During this period revenues increased more than 120 percent and the revenue from local taxes increased from 68.5 percent of total in 1950-51 to 70.8 percent of total in 1959-60.

School district expenditures have increased 129 percent in this same 10-year period largely because of increased salaries.

Under present economic conditions, there is little doubt that the operating cost per pupil will continue to increase in the future. As new growth occurs, new school construction will necessitate an increase in expenditures to retire new bond issues. Local taxes will remain the primary source of revenue amounting to more than 70 percent of the total revenue.

Assessed Valuations and Tax Rates

Table 28 shows the trend in assessed values for 1951-52 through 1960-61, for the five local taxing agencies. Assessed values for the City of Port Arthur have shown a steady increase. The significant increase between 1959-60 and 1960-61 resulted from the annexation of a large area by the city. In the nine-year period prior to 1960-61, the average annual increment of assessed values was 2.7 percent of the previous year's valuation. The 1960-61 valuations for the city are placed at $131,884,700. The Port Arthur Independent School District's valuation is $311,746,300.

Table 28 shows also the tax rate per $100 valuation for the five local taxing agencies. The city rate has been constant since 1956-57 at $1.90 per $100 valuation. The School District has shown only a $0.09 increase in the last four years compared with a per capita cost increase of more than $60. Jefferson County has shown an increase of only $0.14 per $100 valuation over the past 10 years. Drainage District 7 had an almost constant rate until 1959-60 when it was increased by $0.16 per $100 valuation. Drainage District 4's tax rate has decreased from $0.92 to $0.68 per $100 valuation during the 10-year period.

Ability to Finance Local Improvements

Legal Limitation on Tax Rates of Major Agencies

The taxing power of large cities in Texas is two and one-half ($2\frac{1}{2}$) percent of the taxable property. However, Port Arthur's charter limits the taxing power to two percent ($2.00 per $100 valuation) of the taxable property.

The charter provides also that bonds may be issued upon a favorable vote of the qualified voters. After such vote, the legality of the bonds must be certified by the Attorney General. The charter does not stipulate a maximum period that any bond issue may run but does limit the interest rate to five percent. There is no limitation on the amount of bonded debt that may be incurred.

School districts in the state are limited to one and one-half percent for maintenance and bonds except that they may issue bonds up to 10 percent of assessed value and levy the necessary taxes to retire them.

Counties are limited by the constitution to one and one-half percent of the market value of taxable property, except that special legislation may permit counties to issue bonds up to 25 percent of its assessed value and levy taxes to retire them.

Special districts, such as drainage and port, have tax limits placed on them at the time of their creation.

Overlapping Debt

As pointed out previously, there are presently five agencies which levy and collect taxes on property in the City of Port Arthur. These agencies, likewise pledge their assets within the city on bond issues for public improvements.

Comparison of Rates of Net General Obligation Debt and Assessed Valuation, 1950-60

Previous data has shown the rate of growth of the assessed valuation of the city. Table 29 is presented to show the relationship between net bonded debt and the assessed valuation for the period 1950-60. At the beginning of the period, net debt amounted to 2.72 percent of the valuation. During the 10-year period, while debt was increasing by almost 2.5 million dollars, the assessed valuation increased by nearly 57 million dollars, yet the percentage of debt to valuation increased by only 0.72 percent.

Debt Service Requirements, 1960-1980

Table 30 is a compilation of the present general obligation debt service requirements by agency by year. These requirements will increase each year until a maximum of 2.174 million dollars is reached in 1964-65. A gradual reduction will take place thereafter as issues are retired. In 1965-66, Drainage District 7 will retire the last of its outstanding bonds. Drainage District 4 will retire the last of its outstanding bonds in 1966-67.

Proposed Capital Improvement Program

The following program was prepared from an inventory of public needs as contained in the Comprehensive Plan together with necessary improvements that are not an integral part of the plan. Cost estimates are based upon present conditions and are necessarily approximate as no detailed design plans have been prepared for any of the proposed improvements. The program is comprehensive in that it includes many projects to be carried out by non-municipal public agencies at their own expense. The program is designed to be carried out during the five-year period beginning in the fiscal year 1961-62.

The Five-Year Capital Improvement Program is shown on Plate 40 and is summarized in the following table:

Five-Year Capital Improvement Program*

	Estimated Total Cost	Cost to City	Cost to Other Agencies
Major Streets			
Preventive Maintenance	$1,000,000	$1,000,000	
Signalization	100,000	100,000	
State Highway 87-16th Street	2,206,800	196,250	$2,010,550

---

*For details of specific projects consult Preliminary Report "Public Works and Administration" dated August, 1961.

	Estimated Total Cost	Cost to City	Cost to Other Agencies
Lakeshore Drive	$889,150	$889,150	
Austin Avenue	131,440	131,440	
State Highway 347-Stadium Road	590,000	37,000	$553,000
39th Street	68,000	68,000	
State Highway 347	2,045,000		2,045,000
State Highway 87	860,000	25,000	835,000
State Highway 87	1,216,000		1,216,000
U.S. Highway 69, 96, 287	9,400,000		9,400,000
Subtotal Major Streets	$19,506,390	$2,446,840	$17,059,550
Schools			
Administration Building	$390,000		$390,000
Six additional classrooms, Wheatley	180,000		180,000
Ten additional classrooms, Houston	300,000		300,000
Ray Avenue Elementary (new)	700,000		700,000
Eight classrooms and additions, Pease	205,000		205,000
Lakeside Park Elementary (new)	800,000		800,000
39th St. Junior High (new)	1,250,000		1,250,000
25th Street Elementary (new)	700,000		700,000
Subtotal Schools	$4,525,000		$4,525,000

	Estimated Total Cost	Cost to City	Cost to Other Agencies
Parks			
Neighborhood	$180,000	$180,000	
Large Park	200,000	200,000	
Subtotal Parks	$380,000	$380,000	
Parking	$175,000	$175,000	
Public Buildings			
City Hall	$1,000,000	$1,000,000	
Fire Station & Equipment	100,000	100,000	
Service Center	275,000	275,000	
Federal Building	750,000		$750,000
Relocate Fire Station	80,000	80,000	
Addition to Branch Library	30,000	30,000	
Subtotal Public Buildings	$2,235,000	$1,485,000	$750,000
Water and Sewer	$500,000	$500,000	
Drainage	$600,000	$600,000	
TOTAL FIVE-YEAR PROGRAM	$27,921,390	$5,586,480	$22,334,550

Recapitulation

Revenue Supported City Bond Issue	$175,000
General Obligation City Bond Issue	4,911,840
Water and Sewer General Obligation Bond Issue	500,000
Total City Cost	5,586,840
School District	4,525,000
County	1,758,500
State	8,641,525
Federal	7,409,525
Total Cost	$27,921,390

The proposed program for municipal improvements totals $5,586,840 to be financed by a combination of general obligation bonds and revenue bonds. The total program of

$27,921,390 does not include various highway projects under contract or to be let for contract within the near future.

Many of the improvements will be financed by other governmental agencies. The school district will spend over 4.5 million dollars, while the county will spend over 1.75 million dollars primarily for highway right-of-way. If the assumption on which these estimates were prepared are valid, the state will spend nearly 9.0 million dollars for construction and right-of-way. If these assumptions are not valid, this sum, as well as the city, county and federal portions, will change also.

Water, Sewer and Drainage

Realizing that a comprehensive engineering survey of the water, sewer and drainage needs of the city is necessary before a reasonable program of improvements can be planned in these categories, the city has made application to the Housing and Home Finance Agency for the necessary funds to complete such a survey. It is estimated that this survey will begin shortly. For this reason no specific proposals have been made in the water, sewer and drainage section of the Capital Improvement Program. The aforementioned survey should provide a comprehensive list of necessary improvements and their priorities which can then be integrated with the allocated funds in the various sections of the program. These funds for the water and sewer portion and the drainage portion are $500,000 and $600,000 respectively.

In December, 1959 the United States Corps of Engineers presented to the citizens of this area, two possible plans for a Hurricane Protection System. Before further action could be taken by the Corps of Engineers, it was necessary for the citizens of the area to show a sincere interest in the project. In order to show "good faith" in the Protection System, a committee was organized composed of representatives of the various entities involved. The only significant action taken by this committee, however, was the approval of Plan "B" of the proposed Hurricane Protection System. Another even more important function of that commitee was, and still is, to arrange for payment of this area's approximate $12,000,000 portion of the system. Latest reports estimate that this project could possibly receive Congressional action within one year. It is extremely important that this committee begin study on its course of action at the earliest possible date. It is recommended that this committee follow the legislative procedures necessary to organize a Flood Control District. The duty of this district would be to administer all phases of the Hurricane Protection System.

It is also proposed that the jurisdiction of this district include drainage responsibilities. Presently there appears to be no policy agreement between municipalities and drainage districts with respect to drainage improvements in the area. This situation has resulted in inequities throughout the urban area. Since these differences will undoubtedly continue to exist so long as there is no policy agreement between all of the agencies, it is obvious that an amicable solution to the problem on an urban area basis must be formulated. There are two possibilities of basic policy agreement between the Flood Control District and the municipalities. One could be that of collection of storm water by the cities and distribution to main canals of the district for removal. The jurisdiction of those canals maintained by the district should be made apparent insofar as possible, at the time of organization of the district. Another solution would relieve the city of all drainage responsibilities giving the Flood Control District complete jurisdiction.

Another of the difficult problems to be resolved in the organization of a Flood Control District is that of location of boundaries. Two suggestions become apparent. They are:

(1) The boundaries of the district should encompass all of Drainage Districts 4 and 7. This section of the south county area will materially benefit from the protection provided by the Hurricane Protection System. It would be much easier to solve the drainage problems of the urban area on an over-all basis within the jurisdiction of one district, since the drainage of the entire south county area must be integrated with the Protection System.

(2) Determine the area of benefit as provided by Plan "B" under the conditions set forth in the "design storm". This area would then come under the jurisdiction of the Flood Control District. The remaining areas would remain in their respective drainage districts.

The first of these two proposals is preferable. An over-all solution to the problems involved would be more economical when administered by a district capable of issuing bonds to finance both the Hurricane Protection System and other necessary drainage relief programs on a continuing basis to all areas of south county.

Urban Renewal

Although no allocations have been made in the Capital Improvement Program for this expenditure, the city must provide improvements totaling almost $650,000 to fulfill its commitment in the Urban Renewal Project Area. It is suggested that study be given to the possibility of providing the necessary funds for the completion of this project and future projects from the revenue obtained from the city's gas well and/or a portion of the tax revenue derived from other producing wells. Although the Urban Renewal Process alone will never correct the slum problem, continuing funds must be made available to carry on an effective Urban Renewal Program. The enforcement of Building and Housing Codes together with an effective Renewal Program can, in a long-term process, eliminate blighted areas.

It must also be noted that provision for improvement of the existing bridge or a program for obtaining a new bridge is excluded from the Capital Improvement Program. At this time, the necessary arrangements are being prepared prior to requesting federal funds for a comprehensive engineering survey to determine the condition of the existing bridge to Pleasure Island. This survey will provide the information necessary to make a decision as to whether or not the bridge can be economically repaired. The cost estimates for repairing the mechanism and superstructure are approximately $120,000. If repair of the foundation and piers is necessary the cost could be almost $500,000. If the survey reveals that repair is economical, then that cost will have to be integrated with the Improvement Program. If a new structure is necessary, then considerable study will be required to determine the proper course of action to secure its construction.

Likewise, the cost of providing protection for the banks of Pleasure Island has been omitted from the program. This cost should be the responsibility of the Federal Government, as it makes adjustments in the width and depth of the Intracoastal Waterway.

Financing the Capital Improvement Program

Suggested Bond Program

The proposed Capital Improvement Program presented in the preceding section will require the issuance of

General Obligation Bonds in the amount of $5,000,000. It is suggested that the entire five-year program be authorized by the citizens in a single referendum and that the bonds be issued according to the following schedule:

Fiscal Year	Amount of Issue	Date of Issue
1961-62	$1,500,000	April 1, 1962
1962-63	1,000,000	April 1, 1963
1963-64	1,000,000	April 1, 1964
1964-65	750,000	April 1, 1965
1965-66	750,000	April 1, 1966

In cooperation with the city's Fiscal Agent, Table 31 was prepared to show a possible schedule of payment for general obligation bonds in the amount necessary to finance the Capital Improvement Program.

This table shows that the estimated valuation of property is estimated to increase at an annual rate of $2,000,000 through 1964-65 and at an annual rate of $1,000,000 thereafter. Recent estimates indicate a complete depletion of the gas field in the 13-year period through 1973-74. The amount of money available to meet the present and future debt requirement (debt service) is shown at $0.32 for the 1961-62 fiscal year. In order to finance the $5,000,000 Capital Improvement Program, it will be necessary to increase the tax levy for debt service to $0.40 in 1962-63 and for subsequent years. In order to simplify the presentation of numerous figures, the principal and interest requirements are totaled in each year for each of the five issues. Although a period of 27 years will be required to meet all principal and interest requirements for the issue to be sold in April, 1962, the length of time required to make principal payments amounts to only 20 years between 1969-70 and 1989-90. The deferment of principal payments in this issue (1st), and the 2nd, 4th and 5th issues is occasioned by the city's rather heavy debt requirement for the next 10 years or until 1970. The present debt requirement is shown in Column 3, while the debt requirement resulting from the proposed bond program is shown in the column at the extreme right in Table 31. It should be noted that the debt service fund will not produce sufficient money to meet the obligation in the years 1966-67 through 1969-70. The deficit will be made up, of course, from the surplus in the interest in the Interest and Redemption Fund.

This program has certain limitations which must be explained at this time. Under the tax rate proposed to finance the program, additional large amounts of bonds should not be issued prior to 1971 if the $5,000,000 in bonds proposed herein is issued. In an emergency, however, additional bonds could be issued sometime after April, 1966, to be financed by the accumulated surplus in the Interest and Redemption Fund. Although this program covers what may appear to be a sufficient period of time, a continuing bonding program in the annual amount of $750,000 should be initiated beginning in the 1966-67 fiscal year. Obviously, additional sources of revenue will be necessary if this program is to be on a continuing basis as it should be.

Effect of the Bond Program

The effect of the proposed bond program on the estimated assessed value per capita, the net bonded debt, the ratio of net bonded debt to assessed value and the net bonded debt per capita is shown in Table 32. Although the State of Texas imposes no legal maximum debt limit which cities may incur, eight percent is a generally accepted prudent limit. Table 32 shows that the net bonded debt increases to a high of $8,489,000 in 1965-66, or 5.98 percent of the assessed value which is well below the acceptable maximum. During the five-year period, the net bonded debt per capita will increase to a peak of $99.46 in 1965-66 and then decline.

Water and Sewer Program

The Water and Sewer Fund is obligated to pay from its net revenues, principal and interest as it matures on revenue bonds outstanding in the amount of $4,811,000. This revenue bond ordinance was adopted in November, 1949. The net revenue of the system, for the fiscal year 1959-60, was $378,709. The amount of principal and interest required to retire the aforementioned revenue bonds is approximately $292,000 per year. This figure when subtracted from the net revenue of $378,709 leaves $86,709 which can be set aside for other purposes.

The bond ordinance referred to above provides for an Extension and Improvement Fund into which $3,500 per month ($42,000 per year) must be deposited. This amount is to increase to $5,000 per month ($60,000) beginning June 15, 1962. For purposes of this estimate, the $60,000 figure is deducted from the surplus mentioned previously of $86,709. The result then is $26,709 which would remain for the items which follow.

When the last installment of the Water System Revenue Bonds was sold in November, 1959, to build the sewage treatment plant, interest during construction was capitalized (set aside out of the proceeds of the bond issue) with the stipulation in the Notice of Sale to the prospective buyers of bonds that rates and charges for services would be increased concurrently with the placement of the facility in service. This was accomplished in a new rate ordinance recently adopted, the revenue from which was conservatively estimated by the city's consulting engineers to be $388,621. This together with the previous balance amounts to a total of $415,330.

The following is a list of items which must be applied against this total:

Item		Balance $415,330
Estimated cost of maintenance and operation of sewage treatment plant	70,000	345,330
Annual amount required to pay principal and interest on bonds assumed by the City of Port Arthur (W.C.&I.D. #4, 5, and 11)	104,000	241,330
Annual amount required to pay principal and interest on general obligation bonds issued for the purpose of making various improvements in the water and sewer system	120,000	121,330
Estimated annual cost of maintenance and operation of that portion of newly annexed areas (W.C.&I.D. #5 and 11)	35,000	86,330
Maintenance and operation of system (purchases of Capital Assets)	20,000	66,330
Early refunding of bonds issued by W.C.&I.D. #5 assumed for payment by City of Port Arthur	30,000	$36,330

This amount of $36,330 will amortize a $500,000 bond issue, the amount which has been allocated in the Capital Improvement Program for improvements in the water and sewer system.

Projected City Tax Rate and Expenditures

Table 33 has been prepared to show the projected trends in municipal expenditures paid from general fund tax collections and their effect on the tax rate. These estimates are based on the following assumptions:

1. Population would increase at the rate of 3,030 persons per year.
2. Assessed values will increase as indicated in Note 1, Table 33.
3. The general fund expenditure from ad valorem taxes would continue to increase at the rate of $1.00 per capita per year for five years and $0.85 per capita per year thereafter.
4. Sixty-seven and six tenths percent of the general fund expenses are to be raised by property taxes.
5. A 10 percent allowance for contingency and capital outlay should be provided.

Table 33, in which these projections are shown, indicates an increase in the tax levy beginning in 1962-63. This increase will not be allowed under the present city charter due to a total tax limit of $2.00 per $100 of assessed valuation. Possible solutions to the problem are discussed in the following section. The tax rate shown would be a burden upon real estate and suggests an urgent need for procuring other sources of revenue.

Other Sources of Revenue

Because of a great number of variable factors, the projections made in Tables 32 and 33 of this report must be viewed with some reservation. Basic assumptions are necessary in almost every projection or estimate concerning the future.

Estimated population and estimated valuation of property are the basis for projecting tax rates. A sudden increase in population will produce an increase in the assessed valuation of the city. Likewise, these changes will produce corresponding changes in tax rates, etc. The rapidly advancing society in which we live produces changes at a rate that is often difficult to estimate. For this reason constant surveillance must be maintained by all departments of the city government to be alert for changing trends that could materially affect a bonding program or any other program of equal magnitude.

Because of the existing state tax laws, a city's source of revenue is limited to the property valuations within its jurisdiction. Unless some change is made to permit an income or payroll tax, or a general sales tax, property will continue to bear the larger part of the burden.

The most obvious means of increasing valuation and taxes with no increase in tax rate would be the incorporation of the surrounding industrial plants or a revaluation of property within the city to more nearly equal the "true value" of property. It is estimated that the basis for valuation in the city is closer to 45 percent than to the stated 50 percent of "true value". If this is true the city could increase the valuation within the city by 10 percent with a city-wide revaluation. It is estimated that a project of this magnitude would require from six months to one year to complete at a cost of approximately $75,000 to $100,000. It is suggested that the city give this possibility further study and consideration. Additional assistance can be afforded by amending the City Charter to allow an added $0.50 per $100 valuation tax rate. Unless the citizens are willing to pay for necessary improvements, the city can only be mired in its lack of foresight of past years.

Projected School Tax Rates

Estimates of school district expenditures and debt service to be financed by tax levies have been compiled on Table 10. Operating costs to be raised from tax rates are for operating expenses only and do not include miscellaneous or fixed charges. These estimates are based on the following assumptions:

1. Assessed values will increase at a continuous rate of five percent per year.
2. Operating cost per capita will continue to increase at the average rate of increase over the past 10 years ($12.31 per capita per year).
3. A bonding program of $750,000 per year.

The study indicates that the school district tax rate will increase from $1.58 to $1.66 in 1967-68, and then decline. The debt service tax levy will decrease gradually to $0.19 in 1969-70.

The Aggregate Tax Rate

Prior sections of this report have established, insofar as can be anticipated, the general level of taxation of each of the several local agencies. Since such a program could be modified to a considerable degree, any attempt to anticipate the aggregate tax rate of all the agencies must be considered hypothetical. Also, the report proposes the consolidation of the two drainage districts into a Flood Control District to finance the Hurricane Protection System and supplementary drainage programs. Since the exact cost of the program is as yet undetermined it is impossible to estimate the tax rate necessary to finance this project. Therefore, no attempt has been made to forecast the future aggregate tax rate for citizens of Port Arthur.

	1950-51		1957-58		1958-59		1959-60	
	Amount	% Total	mount	% Total	Amount	% Total	Amount	% Total
General Fund								
Revenue								
Property Taxes	$962.8	66.5	$91.7	65.4	$1,541.6	65.4	$1,629.5	64.8
Fines and Forfeitures	58.8	4.1	02.2	8.9	205.5	8.7	202.1	8.0
Street Rental	77.2	5.3	23.5	5.4	134.0	5.7	142.4	5.7
Licenses and Permits	45.8	3.2	58.1	2.5	61.5	2.6	74.9	3.0
Services, Fees and Sales	265.3	18.3	58.4	15.7	358.2	15.2	412.4	16.4
Miscellaneous	37.6	2.6	48.0	2.1	57.8	2.4	54.2	2.1
Total	$1,447.5	$100.0	$81.9	100.0	$2,358.6	100.0	$2,515.5	100.0
Expenditures								
General Government	$155.2	11.6	42.1	10.1	$250.6	10.8	$288.7	11.5
Public Safety	462.6	34.6	10.2	33.9	888.3	38.2	1,037.4	41.2
Health and Welfare	47.7	3.6	78.2	3.3	80.2	3.4	80.8	3.2
Public Works	512.8	38.4	50.5	35.6	764.4	32.9	777.5	30.9
Recreation and Parks	55.3	4.1	75.0	3.1	84.7	3.6	78.5	3.1
Library	19.4	1.4	53.6	2.2	55.4	2.4	57.9	2.3
Insurance and Employee Benefits	40.9	3.2	56.2	6.5	153.8	6.6	155.3	6.2
Miscellaneous	40.8	3.1	24.8	5.3	46.9	2.1	42.8	1.6
Total	$1,334.7	100.0	$90.7	100.0	$2,322.4	100.0	$2,516.9	100.0
Investments in Fixed Assets								
Current Revenue (1)	$149.4	20.5	04.0	15.5	$115.1	42.7	$96.1	37.3
Time Warrants	0.0	-	0.0	-	27.2	10.1	0.0	-
Bond and Construction Funds	579.3	79.5	10.3	84.5	127.0	47.2	161.7	62.7
Total	$728.7	100.0	14.3	100.0	$269.3	100.0	$257.8	100.0
Interest and Redemption Fund								
Revenue								
Property Taxes	$222.2	99.8	75.9	98.7	$265.4	98.8	$309.4	98.3
Interest on Investments	0.1	-	3.3	1.2	3.0	1.2	5.2	1.7
Paving Assessments	0.3	0.2	0.2	0.1	0.0	-	0.0	-
Total	$222.6	100.0	79.4	100.0	$268.4	100.0	$314.6	100.0
Expenditures								
General Bonds and Warrants	$237.8	-	83.2	-	$263.5	-	$314.1	-
Water and Sewer Fund								
Revenue								
Water Sales	$473.1	73.8	702.4	75.8	$690.9	75.3	$723.6	76.6
Sewer Revenue	125.5	19.6	189.1	20.4	194.4	21.2	195.2	20.7
Servicing Installations	35.2	5.5	29.6	3.2	26.1	2.8	20.8	2.2
Miscellaneous	7.3	1.1	5.7	0.6	6.4	0.7	4.6	0.5
Total	$641.1	100.0	926.8	100.0	$917.8	100.0	$944.2	100.0
Expenditures								
Source of Supply	$72.1	12.0	$68.7	7.4	$72.7	7.6	$74.2	7.7
Purification	78.3	13.0	103.4	11.2	102.8	10.7	113.1	11.7
Distribution	116.3	19.3	107.0	11.6	125.5	13.1	123.6	12.8
Accounting and Collecting	45.6	7.6	66.6	7.2	71.6	7.5	74.0	7.7
Administration and General	80.6	13.4	113.1	12.2	125.5	13.1	122.6	12.7
Stores	4.3	0.7	7.0	0.8	6.6	0.7	7.1	0.7
Sanitary Sewers	24.0	4.0	44.7	4.8	47.4	4.9	50.8	5.4
Subtotal	$421.2	70.0	510.5	55.2	$552.1	57.6	$565.4	58.7
Capital Outlay	$48.5	8.1	121.6	13.1	$90.6	9.4	$103.0	10.7
Debt Service (2)	$131.8	21.9	293.2	31.7	$315.4	33.0	$294.6	30.6
Total Expenditures	$601.5	100.0	925.3	100.0	$958.1	100.0	$963.0	100.0

(1) Included in Gen

(2) Includes bonds

Note: All figures

Source: Annual St

Table 26

TREND IN REVENUES AND EXPENDITURES
1950-1960
Port Arthur, Texas

	1950-51		1951-52		1952-53		1953-54		1954-55		1955-56		1956-57		1957-58		1958-59		1959-60	
	Amount	% Total	Amount	% Total	Amount	% Total	Amount	% Total	Amount	% Total	Amount	% Total	Amount	% Total	Amount	% Total	Amount	% Total	Amount	% Total
General Fund																				
Revenue																				
Property Taxes	$962.8	66.5	$1,099.0	67.1	$1,173.8	68.1	$1,215.0	68.2	$1,275.7	67.7	$1,328.5	67.1	$1,469.0	67.5	$1,491.7	65.4	$1,541.6	65.4	$1,629.5	64.8
Fines and Forfeitures	58.8	4.1	70.9	4.3	58.8	3.4	70.7	4.0	94.5	5.0	180.8	9.1	189.5	8.7	202.2	8.9	205.5	8.7	202.1	8.0
Street Rental	77.2	5.3	82.8	5.1	97.5	5.7	100.7	5.6	102.1	5.4	108.9	5.5	117.3	5.4	123.5	5.4	134.0	5.7	142.4	5.7
Licenses and Permits	45.8	3.2	37.7	2.3	37.3	2.2	37.8	2.1	43.8	2.3	49.3	2.5	50.4	2.3	58.1	2.5	61.5	2.6	74.9	3.0
Services, Fees and Sales	265.3	18.3	306.9	18.7	314.1	18.2	315.6	17.7	326.4	17.3	266.1	13.4	304.1	14.0	358.4	15.7	358.2	15.2	412.4	16.4
Miscellaneous	37.6	2.6	40.4	2.5	41.4	2.4	42.3	2.4	42.7	2.3	44.9	2.4	43.6	2.1	48.0	2.1	57.8	2.4	54.2	2.1
Total	$1,447.5	$100.0	$1,637.7	100.0	$1,722.9	100.0	$1,782.1	100.0	$1,885.2	100.0	$1,978.5	100.0	$2,174.9	100.0	$2,281.9	100.0	$2,358.6	100.0	$2,515.5	100.0
Expenditures																				
General Government	$155.2	11.6	$171.4	10.7	$196.7	11.5	$178.3	9.8	$171.8	9.4	$199.7	10.3	$202.8	9.2	$242.1	10.1	$250.6	10.8	$288.7	11.5
Public Safety	462.6	34.6	512.7	32.2	545.7	31.9	591.8	32.7	637.2	35.1	684.2	35.3	734.8	33.5	810.2	33.9	888.3	38.2	1,037.4	41.2
Health and Welfare	47.7	3.6	57.4	3.6	61.3	3.6	65.9	3.6	75.0	4.1	72.7	3.7	73.0	3.3	78.2	3.3	80.2	3.4	80.8	3.2
Public Works	512.8	38.4	633.7	39.7	635.2	37.2	767.3	42.4	692.8	38.1	669.5	34.5	778.0	35.5	850.5	35.6	764.4	32.9	777.5	30.9
Recreation and Parks	55.3	4.1	54.0	3.4	68.4	3.4	55.6	3.1	61.2	3.4	59.0	3.0	56.0	2.5	75.0	3.1	84.7	3.6	78.5	3.1
Library	19.4	1.4	31.7	2.0	34.6	2.0	36.6	2.0	47.1	2.6	44.3	2.3	46.1	2.1	53.6	2.2	55.4	2.4	57.9	2.3
Insurance and Employee Benefits	40.9	3.2	48.2	3.0	50.4	2.9	44.7	2.5	75.4	4.1	142.7	7.4	146.3	6.7	156.2	6.5	153.8	6.6	155.3	6.2
Miscellaneous	40.8	3.1	85.1	5.4	116.4	6.5	68.7	3.9	56.8	3.2	65.9	3.5	155.4	7.2	124.8	5.3	46.9	2.1	42.8	1.6
Total	$1,334.7	100.0	$1,594.2	100.0	$1,708.7	100.0	$1,808.8	100.0	$1,817.3	100.0	$1,938.0	100.0	$2,192.4	100.0	$2,390.7	100.0	$2,322.4	100.0	$2,516.9	100.0
Investments in Fixed Assets																				
Current Revenue (1)	$149.4	20.5	$169.4	26.1	$185.4	68.7	$218.4	55.9	$120.4	26.3	$135.4	82.2	$150.9	34.8	$204.0	15.5	$115.1	42.7	$96.1	37.3
Time Warrants	0.0	-	72.0	11.1	0.0	-	116.5	29.8	0.0	-	0.0	-	0.0	-	0.0	-	27.2	10.1	0.0	-
Bond and Construction Funds	579.3	79.5	407.3	62.8	84.5	31.3	55.6	14.3	337.9	73.7	29.3	17.8	282.3	65.2	1,110.3	84.5	127.0	47.2	161.7	62.7
Total	$728.7	100.0	$648.7	100.0	$269.9	100.0	$390.5	100.0	$458.3	100.0	$164.7	100.0	$433.2	100.0	$1,314.3	100.0	$269.3	100.0	$257.8	100.0
Interest and Redemption Fund																				
Revenue																				
Property Taxes	$222.2	99.8	$245.0	98.7	$219.2	99.4	$243.8	99.8	$264.7	99.5	$313.0	99.4	$271.6	98.3	$275.9	98.7	$265.4	98.8	$309.4	98.3
Interest on Investments	0.1	-	2.5	1.0	0.5	0.3	0.1	-	1.2	0.4	1.6	0.5	4.5	1.6	3.3	1.2	3.0	1.2	5.2	1.7
Paving Assessments	0.3	0.2	0.8	0.3	0.5	0.3	0.3	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.0	-	0.0	-
Total	$222.6	100.0	$248.3	100.0	$220.2	100.0	$244.2	100.0	$266.1	100.0	$314.8	100.0	$276.3	100.0	$279.4	100.0	$268.4	100.0	$314.6	100.0
Expenditures																				
General Bonds and Warrants	$237.8	-	$220.5	-	$220.3	-	$249.1	-	$252.1	-	$319.6	-	$273.0	-	$283.2	-	$263.5	-	$314.1	-
Water and Sewer Fund																				
Revenue																				
Water Sales	$473.1	73.8	$474.9	68.3	$566.5	73.8	$591.8	75.0	$610.9	73.8	$649.4	75.1	$652.6	75.7	$702.4	75.8	$690.9	75.3	$723.6	76.6
Sewer Revenue	125.5	19.6	159.0	22.9	170.2	22.1	173.2	21.9	175.1	21.1	176.8	20.4	181.4	21.0	189.1	20.4	194.4	21.2	195.2	20.7
Servicing Installations	35.2	5.5	45.9	6.6	27.9	3.6	22.1	2.8	33.7	4.1	33.9	3.9	26.3	3.0	29.6	3.2	26.1	2.8	20.8	2.2
Miscellaneous	7.3	1.1	15.4	2.2	2.8	0.5	1.7	0.3	8.3	1.0	4.5	0.6	1.9	0.3	5.7	0.6	6.4	0.7	4.6	0.5
Total	$641.1	100.0	$695.2	100.0	$767.4	100.0	$788.8	100.0	$828.0	100.0	$864.6	100.0	$862.2	100.0	$926.8	100.0	$917.8	100.0	$944.2	100.0
Expenditures																				
Source of Supply	$72.1	12.0	$78.0	10.0	$70.4	8.8	$72.3	9.1	$80.4	10.3	$74.3	9.4	$68.7	8.4	$68.7	7.4	$72.7	7.6	$74.2	7.7
Purification	78.3	13.0	76.6	9.8	90.6	11.4	96.6	12.2	99.0	12.7	94.9	11.9	103.2	12.7	103.4	11.2	102.8	10.7	113.1	11.7
Distribution	116.3	19.3	98.0	12.6	108.4	13.6	95.4	12.0	79.3	10.1	88.2	11.1	106.0	13.0	107.0	11.6	125.5	13.1	123.6	12.8
Accounting and Collecting	45.6	7.6	49.8	6.4	54.9	6.9	58.9	7.4	59.6	7.6	58.8	7.4	60.0	7.4	66.6	7.2	71.6	7.5	74.0	7.7
Administration and General	80.6	13.4	75.8	9.7	78.1	9.8	77.1	9.7	90.7	11.6	106.9	13.5	103.5	12.7	113.1	12.2	125.5	13.1	122.6	12.7
Stores	4.3	0.7	3.4	0.4	4.8	0.6	4.3	0.5	4.6	0.6	5.8	0.7	6.3	0.8	7.0	0.8	6.6	0.7	7.1	0.7
Sanitary Sewers	24.0	4.0	38.0	4.9	43.7	5.5	39.9	5.0	37.7	4.8	32.2	4.1	35.1	4.3	44.7	4.8	47.4	4.9	50.8	5.4
Subtotal	$421.2	70.0	$419.6	53.8	$450.9	56.6	$444.5	55.9	$451.3	57.7	$461.1	58.1	$484.8	59.3	$510.5	55.2	$552.1	57.6	$565.4	58.7
Capital Outlay	$48.5	8.1	$108.9	13.9	$105.4	13.2	$88.4	11.1	$63.0	8.1	$50.0	6.3	$43.8	5.4	$121.6	13.1	$90.6	9.4	$103.0	10.7
Debt Service (2)	$131.8	21.9	$251.7	32.3	$239.6	30.2	$261.1	33.0	$267.4	34.2	$282.5	35.6	$286.8	35.3	$293.2	31.7	$315.4	33.0	$294.6	30.6
Total Expenditures	$601.5	100.0	$780.2	100.0	$795.9	100.0	$794.0	100.0	$781.7	100.0	$793.6	100.0	$813.4	100.0	$925.3	100.0	$958.1	100.0	$963.0	100.0

(1) Included in General Fund Operation Expenditures also.

(2) Includes bonds issued by other agencies assumed for payment by City of Port Arthur upon annexation.

Note: All figures in thousands of dollars.

Source: Annual Statistical Reports.

Table 27

TREND IN SCHOOL DISTRICT REVENUES AND EXPENDITURES
PORT ARTHUR INDEPENDENT SCHOOL DISTRICT 1950-1960

Port Arthur, Texas

	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60
Revenues										
Tax Collections	$1,902.4	$1,970.7	$2,265.1	$2,380.1	$2,542.6	$2,641.8	$3,441.9	$3,680.7	$3,979.6	$4,338.9
State Funds	851.9	857.3	1,027.2	1,058.4	1,084.8	1,353.1	1,361.3	1,541.2	1,718.7	1,642.7
Other Sources	21.5	23.9	37.3	40.6	201.7	46.8	102.9	83.5	89.7	139.3
Total Revenues	$2,775.8	$2,851.9	$3,329.6	$3,479.1	$3,829.1	$4,041.7	$4,906.1	$5,305.4	$5,788.0	$6,120.9
Expenditures										
Administration	$92.9	$94.9	$111.1	$117.6	$117.1	$127.7	$133.9	$152.8	$171.1	$178.1
Instruction	1,633.7	1,770.9	2,001.3	2,267.3	2,487.8	2,745.5	2,986.9	3,394.7	3,629.9	3,945.6
Auxiliary Services	63.4	66.8	77.8	78.6	72.3	76.4	84.6	74.6	81.1	88.5
Operation and Maintenance	291.6	375.7	373.3	395.2	397.8	412.9	456.2	509.9	513.7	588.8
Fixed Charges	17.5	19.3	23.2	25.6	20.5	19.5	21.7	23.1	127.3	138.6
Debt Service	353.0	408.1	468.3	464.5	460.1	506.1	680.1	855.7	907.6	960.9
Miscellaneous	154.7	35.2	81.3	357.8	146.3	131.4	116.3	329.8	121.4	76.2
Total Expenditures	$2,606.8	$2,770.9	$3,136.3	$3,706.6	$3,701.9	$4,018.5	$4,479.7	$5,350.6	$5,552.1	$5,976.7

Note: All figures in thousands.

Source: School District Audit Reports.

Table 28

ASSESSED VALUES AND TAX RATES 1951-1961
Local Taxing Bodies
Port Arthur, Texas

		Assessed Value in Thousands			
Fiscal Year	City of Port Arthur	Port Arthur School District	Jefferson County	Drainage District 7	Drainage District 4
1951-52	$77,061.3	$143,544.8	$223,643.0	$117,141.6	$5,114.5
1952-53	80,376.8	152,405.5	233,193.5	121,444.3	5,181.7
1953-54	83,600.0	158,344.4	242,879.7	124,097.5	7,630.9
1954-55	84,100.0	226,404.5	252,401.0	127,071.3	8,040.4
1955-56	88,450.0	230,159.0	268,414.4	135,849.5	7,598.7
1956-57	90,500.0	242,746.7	285,581.9	144,544.5	8,222.3
1957-58	92,840.0	253,249.9	305,386.9	152,819.3	8,244.3
1958-59	94,753.5	264,831.7	326,259.5	162,206.6	9,269.7
1959-60	101,059.0	289,186.4	349,750.0	174,160.8	10,238.3
1960-61	131,884.7	311,746.3	359,539.2	180,371.9	12,621.9
		Tax Rate Per $100 Valuation			
1951-52	$1.76	$1.40	$1.10	$0.26	$0.92
1952-53	1.80	1.50	1.10	0.42	0.91
1953-54	1.80	1.50	1.13	0.26	0.75
1954-55	1.85	1.15	1.13	0.26	0.73
1955-56	1.85	1.15	1.15	0.26	0.76
1956-57	1.90	1.44	1.14	0.27	0.79
1957-58	1.90	1.46	1.24	0.27	0.79
1958-59	1.90	1.53	1.22	0.29	0.79
1959-60	1.90	1.53	1.21	0.45	0.75
1960-61	1.90	1.53	1.24	0.42	0.68

Table 29

TREND OF NET GENERAL OBLIGATION BONDED DEBT AND ASSESSED VALUE

Port Arthur, Texas 1950-1960

Tax Year	Estimated Population	Assessed Value (000)	Assessed Value Per Capita	Net General Bonded Debt	Ratio of Net Debt to Assessed Value	Net Bonded Debt Per Capita
1950-51	57,530	$ 74,986.9	$1,303	$2,040.4	2.72%	$35.47
1951-52	58,798	77,061.3	1,310	1,820.9	2.36%	30.97
1952-53	60,066	80,376.8	1,338	1,968.9	2.45%	32.78
1953-54	61,334	83,600.0	1,363	1,922.4	2.30%	31.34
1954-55	62,602	84,100.0	1,343	2,373.6	2.82%	37.91
1955-56	63,870	88,450.0	1,384	2,305.2	2.61%	36.09
1956-57	65,138	90,500.0	1,389	3,097.9	3.42%	47.56
1957-58	66,406	92,840.0	1,398	3,354.4	3.61%	50.51
1958-59	67,674	94,753.5	1,400	4,084.4	4.31%	60.35
1959-60	68,942	101,059.0	1,465	4,311.0	4.26%	62.53
1960-61	70,210	131,884.7	1,878	4,532.6	3.44%	64.56

Table 30

GENERAL OBLIGATION DEBT REQUIREMENTS FOR PUBLIC AGENCIES

Port Arthur, Texas 1960-1980

Fiscal Year	City of* Port Arthur	Port Arthur School District	Jefferson County	Drainage District 7	Drainage District 4	Total
1960-61	$330.1	$992.1	$582.0	$85.0	$22.0	$2,011.2
1961-62	342.2	994.4	642.0	87.0	23.0	2,088.6
1962-63	362.2	990.0	692.0	88.0	24.0	2,156.2
1963-64	339.2	983.1	722.0	89.0	26.0	2,159.3
1964-65	320.7	987.5	747.0	91.0	28.0	2,174.2
1965-66	313.7	982.5	742.0	92.0	29.0	2,159.2
1966-67	316.5	980.6	772.0		30.0	2,099.1
1967-68	315.1	978.7	440.0			1,733.8
1968-69	314.6	848.6	460.0			1,623.2
1969-70	306.5	486.9	475.0			1,268.4
1970-71	283.4	479.7	490.0			1,253.1
1971-72	291.7	355.5	515.0			1,162.2
1972-73	286.6	248.5	550.0			1,085.1
1973-74	285.1	144.0	675.0			1,104.1
1974-75	274.3	155.6	610.0			1,039.9
1975-76	271.9	152.0	635.0			1,058.9
1976-77	264.3	153.3	615.0			1,032.6
1977-78	251.8	154.4	635.0			1,041.2
1978-79	165.6	155.4	665.0			986.0
1979-80	165.3	156.3				321.6
1980-81	159.9	152.1				312.0

*Does not include debt requirements of Water & Sewer Fund.

NOTE: All figures in thousands.

Table 31

SUGGESTED BOND PROGRAM 1961-62 THRU 1965-66

Port Arthur, Texas

Fiscal Year	(1) Estimated Valuation (000)	(2) Assumed Yield @ $0.40 Per $100 Value (000)	Present Debt Requirement (000)	Schedule of Principal and Interest Requirements					New Total Debt Requirement
				$1,500,000 April 1962	$1,000,000 April 1963	$1,000,000 April 1964	$750,000 April 1965	$750,000 April 1966	
1961-62	$135,000	$405.0	$352,974						$352,974
1962-63	137,000	520.6	370,794	$60,000(3)					430,794
1963-64	139,000	528.2	340,082	60,000	$40,000(3)				440,082
1964-65	141,000	535.8	321,528	60,000	40,000	$90,000(3)			511,528
1965-66	142,000	539.6	314,431	60,000	40,000	88,000	$30,000(3)		532,431
1966-67	143,000	543.4	317,179	60,000	40,000	86,000	30,000	$30,000(3)	563,179
1967-68	144,000	547.2	315,772	60,000	40,000	84,000	30,000	30,000	559,772
1968-69	145,000	551.0	315,236	60,000	50,000	82,000	30,000	30,000	567,236
1969-70	146,000	554.8	307,033	80,000	49,600	80,000	30,000	30,000	576,633
1970-71	147,000	558.6	283,843	79,200	49,200	78,000	30,000	30,000	550,243
1971-72	148,000	562.4	292,124	78,400	48,800	76,000	30,000	30,000	555,324
1972-73	149,000	566.2	286,985	77,600	48,400	74,000	30,000	30,000	546,985
1973-74	150,000	570.0	285,358	76,800	48,000	72,000	30,000	30,000	542,158
1974-75			274,536	76,000	57,600	70,000	30,000	30,000	538,136
1975-76			272,012	75,200	56,800	68,000	30,000	30,000	532,012
1976-77			264,394	74,400	51,000	66,000	80,000	30,000	575,794
1977-78			251,877	73,600	60,000	64,000	78,000	30,000	557,477
1978-79			165,569	72,800	134,000	62,000	76,000	30,000	540,369
1979-80			165,275	102,000	130,000	60,000	74,000	30,000	561,275
1980-81			159,888	100,000	126,000	58,000	72,000	30,000	545,888
1981-82			110,325	148,000	122,000	56,000	70,000	55,000	561,325
1982-83			131,587	144,000	118,000	54,000	68,000	54,000	569,587
1983-84			101,750	140,000	114,000	52,000	66,000	78,000	551,750
1984-85				136,000	110,000		64,000	76,000	386,000
1985-86				132,000	156,000		62,000	74,000	424,000
1986-87				128,000			60,000	122,000	310,000
1987-88				224,000			58,000	118,000	400,000
1988-89				216,000			56,000	114,000	386,000
1989-90				208,000			54,000	110,000	372,000
1990-91							52,000	156,000	208,000

(1) (a.) Assessed valuations probably will increase by annual increment of $3,000,000. For purposes of this program, an annual increase of $2,000,000 is used.

(b.) Assumes valuations on gas producing properties will remain constant for approximately 3 years at present valuation ($13,000,000), thereafter decreasing at an average rate of $1,000,000 per year until field is depleted in 1973-74.

(2) (a.) Assumes 95% collection.

(b.) $0.32 tax rate 1961-62 only; $0.40 tax rate thereafter.

(3) The first installment is to be sold not sooner than April 1, 1962 and each subsequent installment is to be sold not sooner than April 1 of the year indicated.

Table 32

EFFECT OF BOND PROGRAM

Port Arthur, Texas

Fiscal Year	Estimated Population	Estimated Valuation (000) (1)	Estimated Assessed Value Per Capita	Maximum Debt Limit - 8% of Assessed Valuation (000)	Net Bonded (2) Debt (000)	Ratio of Net Bonded Debt to Assessed Value	Net Bonded Debt Per Capita
1961-62	73,230	$135,000.0	$1,843	$10,551.8	$5,848.5	4.33	$79.86
1962-63	76,260	137,000.0	1,796	10,800.0	6,655.4	4.86	87.27
1963-64	79,290	139,000.0	1,753	10,960.0	7,437.1	5.35	93.80
1964-65	82,320	141,000.0	1,713	11,120.0	7,932.5	5.62	96.36
1965-66	85,350	142,000.0	1,664	11,280.0	8,489.0	5.98	99.46
1966-67	88,380	143,000.0	1,618	11,360.0	8,195.5	5.73	92.73
1967-68	91,410	144,000.0	1,575	11,440.0	7,942.0	5.51	86.88
1968-69	94,440	145,000.0	1,535	11,520.0	7,672.5	5.29	81.24
1969-70	97,470	146,000.0	1,498	11,600.0	7,376.0	5.05	75.67
1970-71	100,500	147,000.0	1,463	11,680.0	7,080.0	4.82	70.45

(1) (a) Assessed valuations probably will increase by annual increment of $3,000,000. For purposes of this program, an annual increase of $2,000,000 is used.

(b) Assumes valuations on gas producing properties will remain constant for approximately three years at present valuation ($13,000,000), thereafter decreasing at an average rate of $1,000,000 per year until field is depleted in 1973-74.

(2) Includes proposed bond program as follows:

1961-62	$1,500,000
1962-63	1,000,000
1963-64	1,000,000
1964-65	750,000
1965-66	750,000

Table 33

ESTIMATE OF TAX LEVY - ALL PURPOSES

Port Arthur, Texas

Fiscal Year	Estimated Population	Estimated Valuation (000) (1)	General Fund Expenses From Taxes (000) (2)	Contingency (000)	Total General Fund Expenses From Taxes (000)	General Fund Tax Levy	Debt Service	Total City Tax Levy
1961-62	73,230	$135,000.0	$1,939.0	$193.9	$2,133.0	$1.58	$0.32	$1.90
1962-63	76,260	137,000.0	2,094.9	209.5	2,304.4	1.68	0.40	2.08
1963-64	79,290	139,000.0	2,257.4	225.7	2,483.1	1.78	0.40	2.18
1964-65	82,320	141,000.0	2,426.0	242.6	2,668.6	1.89	0.40	2.29
1965-66	85,350	142,000.0	2,600.6	260.1	2,860.7	2.01	0.40	2.41
1966-67	88,380	142,000.0	2,768.1	276.8	3,044.9	2.13	0.40	2.53
1967-68	91,410	143,000.0	2,940.6	294.1	3,234.7	2.25	0.40	2.65
1968-69	94,440	144,000.0	3,118.4	311.8	3,430.2	2.36	0.40	2.76
1969-70	97,470	145,000.0	3.301.3	330.1	3,631.4	2.48	0.40	2.88
1970-71	100,500	146,000.0	3,489.4	348.9	3,838.3	2.61	0.40	3.01

(1) (a) Assessed valuations probably will increase by annual increment of $3,000,000. For purposes of this program, an annual increase of $2,000,000 is used.

(b) Assumes valuations on gas producing properties will remain constant for approximately three years at present valuation ($13,000,000), thereafter decreasing at an average rate of $1,000,000 per year until field is depleted in 1973-74.

(2) Gross requirement assumes:

(a) General fund expense from taxes will increase at rate of $1.00 per capita per year until 1965-66 and $0.85 per capita per year thereafter; 67.6 percent of general fund expenses to be raised from advalorem taxes.

(b) Ten percent contingency for uncollected taxes and capital outlay.

Table 34

ESTIMATED OPERATION, DEBT SERVICE REQUIREMENT AND TAX LEVY

Port Arthur Independent School District

Fiscal Year	Estimated Assessed (1) Value (000)	Estimated Average Membership	Operating Cost To Be Raised From Taxes (2)	Debt (3) Requirement	Tax Rate (4)		
					Operations	Debt Service	Combined
1961-62	$316,000.0	15,300	$3,981.6	$ 994.4	$1.26*	$0.32*	$1.58*
1962-63	331,800.0	15,700	4,230.2	1,038.1	1.27	0.32	1.59
1963-64	348,400.0	16,200	4,523.8	1,079.3	1.30	0.31	1.61
1964-65	365,800.0	16,800	4,856.1	1,131.9	1.33	0.31	1.64
1965-66	384,100.0	17,100	5,110.4	1,174.9	1.33	0.31	1.64
1966-67	403,300.0	17,500	5,401.6	1,221.1	1.34	0.31	1.65
1967-68	423,500.0	18,100	5,764.2	1,267.3	1.36	0.30	1.66
1968-69	444,700.0	18,800	6,171.5	1,185.3	1.39	0.27	1.66
1969-70	466,900.0	19,500	6,592.5	871.7	1.41	0.19	1.60
1970-71	490,200.0	20,200	7,027.2	912.6	1.43	0.19	1.62

*Proposed Budget 1961-62 Fiscal Year.

(1) Increase five percent per year.

(2) Seventy-eight percent of cost of operation to be raised from local taxes and that cost will increase at the rate of $12.57 per member per year.

(3) Bonding Program of $750,000 per year in addition to present indebtedness (25 year, four percent bonds).

(4) Does not include fixed charges and miscellaneous costs.

ADMINISTRATION*

The completion of the Comprehensive Plan for Port Arthur marks the close of one phase of the city's Planning and Zoning Commission activities. While this is a significant milestone in the city's progress, the potential value of the plan will not be fully realized unless it is adopted and properly administered and carried out day after day, year after year. Constant effort must be exerted to obtain public understanding and support of the various planning measures and objectives.

Present Planning Organization

Port Arthur is one of several "home rule" cities in Texas which has been granted charters empowering the community to establish official planning and zoning commissions.

Under the authority of the City Charter and various applicable state laws, the Planning and Zoning Commission has made progress in guiding and directing the growth of the community. Its work has been handicapped by the lack of an official Comprehensive Plan, and by the lack of a competent planning staff to assist in the commission's work. The first handicap is now in the process of being overcome through the completion of the Comprehensive Plan. The second handicap must be resolved if the Planning Commission is to fully carry out its powers and duties.

Measures Required to Build a City According to a Plan

Basically, five measures are required to insure a successful planning program.

1. There must be an independent planning agency.

The planning agency should be independent of other city departments and should be given legal powers sufficient to permit it to advise, and have its advice heeded, by other local public bodies including independent agencies and state and federal commissions or boards who are engaged in building activities in the community.

2. There must be an officially adopted Comprehensive Plan.

The Comprehensive Plan, presented herein, should be adopted by the Planning and Zoning Commission rather than the City Commission for two reasons: (a) the plan will affect other jurisdictions, such as the School District, and the City Commission would be approving matters over which it has no jurisdiction, and (b) legislative adoption of a plan makes it difficult to change and tends to create in the public mind a presumption that the city administration has committed itself to each and every proposal shown on the plan.

---

*Preliminary Report, "Public Works and Administration", dated August, 1961, Harland Bartholomew and Associates.

3. Private development must be coordinated with the plan.

To insure that private property development is properly coordinated with the Comprehensive Plan, four legal measures are required. These are:

a. The Zoning Ordinance. Controlling the basic land use pattern, the zoning ordinance is the most important part of a city plan.

b. Subdivision Control. Through subdivision regulations new residential areas can be designed within the framework of the Comprehensive Plan.

c. The Official Map. Establishment by Ordinance of an official map showing present streets with proposed new major thoroughfares and major thoroughfares whose rights-of-way should be widened in the future will prevent encroachment of new buildings on the future rights-of-way, thus materially reducing the future cost of property acquisition.

d. Housing and Urban Renewal. The minimum standard housing ordinance and the urban renewal process enables substandard residential areas to be improved.

4. Public improvements must be coordinated with the plan.

The Comprehensive Plan should be a major consideration in the design of all public improvements. To insure proper consideration of such improvements the Planning and Zoning Commission should be charged with the responsibility of reviewing plans for all public improvements prior to authorization or construction.

5. There must be public understanding and support of the plan.

No matter how excellent the planning laws, no matter how sound and inspiring the city plan, no matter how sympathetic and cooperative the official may be, the Comprehensive

Plan will not be carried out unless the plan is generally understood and approved by, and has the backing of, the people of the community.

Proposed New Legislation

The basic state legislation is sufficiently broad to permit effective zoning procedures and subdivision control, but is silent in regard to planning by local governments. This situation could be remedied by securing an amendment to the City Charter or by action of the State Legislature in enacting a city planning enabling act. While the latter procedure is to be preferred as all Texas cities are in need of adequate planning legislation, it may be difficult to persuade the legislature to pass such a law.

In addition to the new planning legislation needed in Port Arthur, there should be broader powers granted to the city to acquire property on which to construct and operate off-street parking lots and garages. This phase of legislation was discussed in the report on "Parking, Public Buildings and the City's Appearance".

Organization and Activities of the City Planning and Zoning Commission

Planning Staff

The purpose of the planning staff is to carry out the administrative, technical and clerical work of the City Planning and Zoning Commission and the Board of Adjustment. In general, a planning staff should be organized to carry on work in connection with day-by-day activities as well as long-range planning matters. Lack of an adequate budget often precludes obtaining necessary personnel needed to satisfactorily carry out both of these functions with the result that the more important long-range planning suffers.

Proposed Planning Staff

To carry out the administrative and technical requirements of the Planning Commission, a planning staff composed of a planning director, a draftsman and a secretary-stenographer should be established.

The following operating budget is recommended for the Department of City Planning:

Salaries and Wages		
Director of Planning	$8,400	
Draftsman	4,800	
Secretary-stenographer	3,050	
Total	$16,250	
Other	3,950	
Total	$20,200	
Per Capita Cost		$0.29

This proposed staff is the minimum requirement for a beginning program. As the city expands and additional duties are undertaken by the staff, it should be expanded by at least one city planner and one draftsman. These additions could be expected after two years' operation under normal growth. These additions would increase the budget to:

Salaries and Wages		
City Planner	$6,600	
Draftsman	4,200	
Total	$10,800	
Other	500	
Total	$11,300	
Expanded Budget	$31,500	
Per Capita Cost		$0.40

APPENDIX

APPENDIX

TABULATION OF MAJOR STREETS AND HIGHWAYS (Plate 13)
PORT ARTHUR, TEXAS

Street	From	To	Existing Conditions				Suggested Cross Section	Proposed R-O-W	Proposed Moving Lanes	Remarks
			R-O-W	Pavement Width	Moving Lanes	Parking Lanes				
Expressways										
U.S. 69,96,287	Corporate Limits	F.M. 365	-	23	2	-	-	-	4	Under construction
" " " "	F.M. 365	Commerce Street	-	2-22	4	-	-	-	4	
" " " "	Commerce Street	16th Street	120	2-33	4	2	-	-	4	
Texas 73	Corporate Limits	Oleander Avenue	varies	24	2	-	-	-	4	
" "	Oleander Avenue	Spur 214	varies	2-21	4	-	-	-	4	
" "	Spur 214	U.S. 69,96,287	varies	2-24	4	-	-	-	4	
" "	U.S. 69,96,287	Texas 87	varies	-	-	-	-	-	4	Under construction
Texas 87	Taft Avenue	Neches River	varies	26	2	-	-	-	4	New bridge across Neches River
A. North-South Streets										
1. Avenue B	Texas 73	F.M. 365	50	20	2	-	F	100	4	Extend north to F.M. 823. Extend south across Taylor's Bayou to Texas 87 west of Bayou. Also provide major street connection from Spur 214 to new extension opposite Texas 73.
2. F.M. 823	Texas 73	El Vista Road	100	22	2	-	G	100	6	
" "	El Vista Road	F.M. 365	100	20	2	-	G	100	6	
" "	F.M. 365	Corporate Limits	100	20	2	-	J	120	4	
3. Spur 214	Texas 87	Texas 73	200	2-21	4	-	-	200	6	Extend south across Intracoastal Waterway to Causeway Road, Cross Section H. new bridge across Waterway
4. Houston Avenue	Lakeshore Drive	Procter Street	100	70	4	-	F	100	4	
" "	Procter Street	19th Street	100	70	2	2(diagonal)	F	100	4	
5. Austin Avenue	7th Street	17th Street	70	20	2	-	D	70	3	
6. Waco Avenue	7th Street	16th Street	70	20	2	-	D	70	3	
7. Augusta Avenue	Procter Street	18th Street	70	20	2	-	D	70	3	Provide connection to Savannah Avenue at 19th Street
8. Savannah Avenue	Procter Street	K.C.S. R.R.	70	40	2	2	D	70	3	
" "	K.C.S. R.R.	Texas 73	varies	-	2	-	H	106	6	Extend north to F.M. 365, then northwest to F.M. 823. Cross Section E between F.M. 365 and F.M. 823
9. 9th Avenue	Procter Street	7th Street	60	36	2	west side only	H	106	6	
" "	7th Street	Lewis Drive	60	36	4	west side only	H	106	6	
" "	Lewis Drive	13th Street	60	36	4	-	H	106	6	
" "	13th Street	16th Street	110	2-36	4	-	H	106	6	
" "	16th Street	Dryden Road	110	2-32	4	-	H	106	6	
" "	Dryden Road	25th Street	60	21	2	-	H	106	6	Grade separation at K.C.S. R.R.
" "	25th Street	28th Street	40	20	2	-	H	106	6	
" "	28th Street	32nd Street	60	20	2	-	H	106	6	
" "	32nd Street	Levee	60	22	2	-	H	106	6	Extend north to F.M. 365 and connect with Henderson Road
10. Henderson Road	F.M. 365	Viterbo Road	50	-	2	-	H	106	6	
11. Stadium Road	Intracoastal Waterway	Procter Street	60	-	2	-	H	106	6	Extend south across new bridge over Intracoastal Waterway and connect with Pleasure Island Road
" "	Procter Street	K.C.S. R.R.	110	24	2	-	H	106	6	
" "	K.C.S. R.R.	Lewis Drive	70	24	2	-	H	106	6	
" "	Lewis Drive	13th Street	60	24	2	-	H	106	6	
" "	13th Street	16th Street	70	24	2	-	H	106	6	
12. Texas 347	16th Street	32nd Street	109	2-33	6	-	H	106	6	
" "	32nd Street	39th Street	107	2-33	6	-	H	106	6	
" "	39th Street	Hogaboom Road	120	16	2	-	H	106	6	
" "	Hogaboom Road	Avenue B	200	16	2	-	H	106	6	
" "	Avenue B	1000' South Viterbo Road	60	50	4	west side only	H	106	6	
" "	1000' South Viterbo Rd.	F.M. 366	varies	16	2	-	H	106	6	

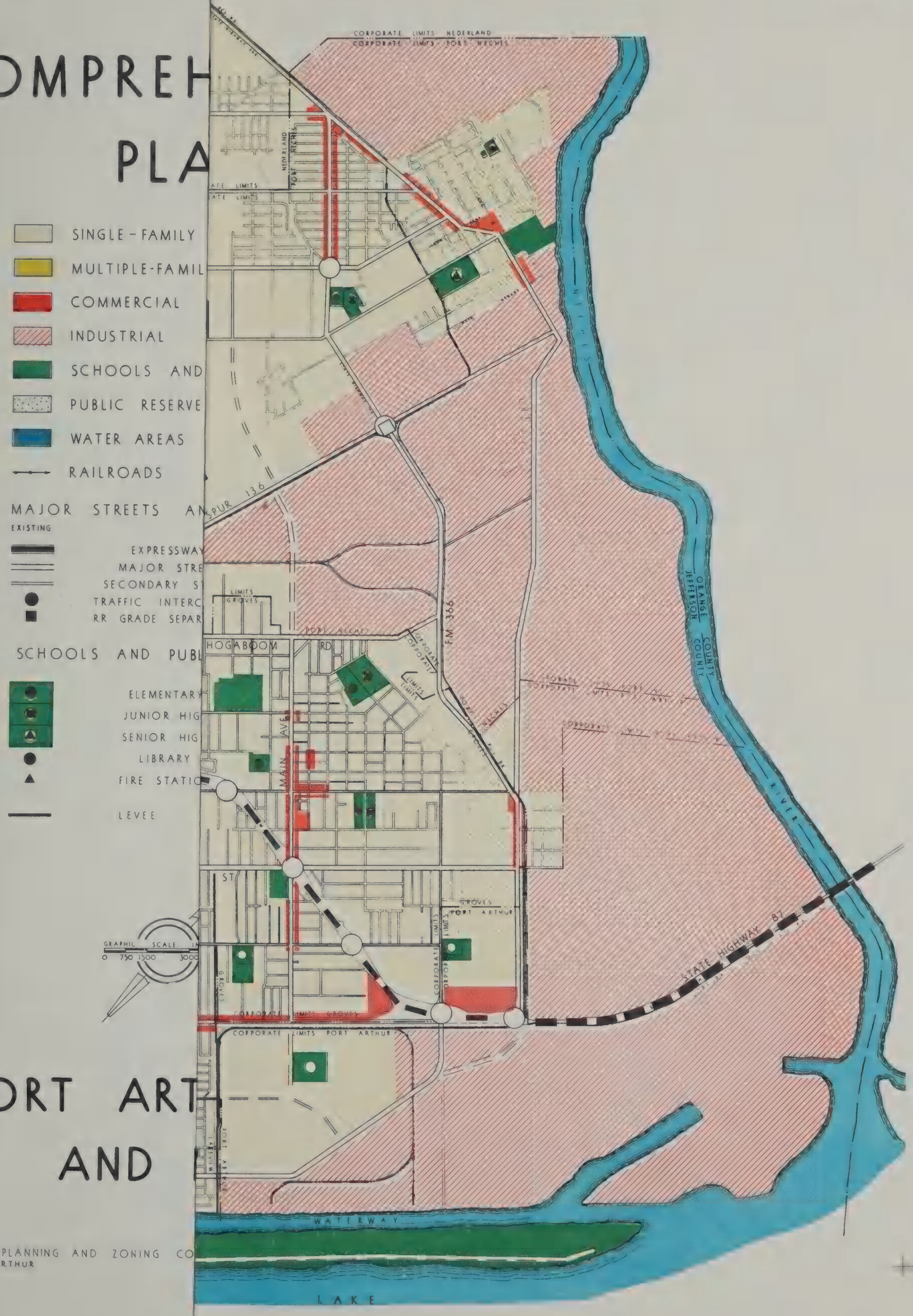
APPENDIX (page two)

Street	From	To,	Existing Conditions				Suggested Cross Section	Proposed R-O-W	Proposed Moving Lanes	Remarks
			R-O-W	Pavement Width	Moving Lanes	Parking Lanes				
13. Main Avenue	Texas 87	25th Street	60-70 varies	20	2	-	H	106	6	Extend south to Lewis Dr. Extension
" "	25th Street	Hogaboom Road	60	20	2	-	H	106	6	Extend north to Spur 136
14. Taft Avenue	Texas 87	39th Street	60	20	2	-	E	80	4	
15. F.M. 366	Texas 87	Texas 347	100	24	2	-	H	106	6	
16. Neches-Atlantic Rd.	39th Street	Spur 136	100	18	2	-	F	100	4	
17. Avenue A	Spur 136	Kitchen Road	60	26	2	-	F	100	4	New connection from Kitchen Road to Llano Street
18. Port Neches Ave.	Llano Street	F.M. 365	60	51	2	2	F	100	4	
" " "	F.M. 365	Wilson Avenue	60	51	2	2	F	100	4	
" " "	Wilson Avenue	F.M. 366	60	29	2	-	F	100	4	
B. East-West Streets										
19. Causeway Road	Corporate Limits	Spur 214 Extension	-	-	2	-	F	100	4	
20. Procter Street	Shreveport Avenue	Mobile Avenue	100	70	4	2 (diagonal)	G	100	4	
" "	Mobile Avenue	Woodworth Boulevard	100	70	4	2	G	100	4	
" "	Woodworth Blvd.	9th Avenue	80	50	4	2	E	80	4	
" "	9th Avenue	Trinity Avenue	70	48	2	2	E	80	4	
" "	Trinity Avenue	Stadium Road	70	27	2	-	E	80	4	
" "	Stadium Road	Levee	70	37	2	2	E	80	4	
21. Procter St. Exten.	Levee	Texas 87	100	21	2	-	F	100	4	New connection from Procter St. Extension to Texas 87 opposite F.M. 366
22. 7th Street	Spur 214 Extension	Abe Lincoln Avenue	70	66	4	south side only	G	100	6	
" "	Abe Lincoln Ave.	Marion Anderson Avenue	60	41	2	2	G	100	6	
" "	Marion Anderson Ave.	Houston Avenue	60	41	3	-	G	100	6	Grade separation at K.C.S. R.R.
" "	Houston Avenue	Woodworth Boulevard	60	39	2	2	A	60	3	
" "	Woodworth Blvd.	9th Avenue	60	24	2	south side only	A	60	3	
" "	9th Avenue	Stadium Road	60	26	2	south side only	A	60	3	
23. 8th Street	Fort Worth Avenue	9th Avenue	60	18	1	2	A	60	3	New connection to 7th Street between Fort Worth Avenue and Houston Avenue. Extend east to Stadium Road
24. Lewis Drive	9th Avenue	Stadium Road	40-60 varies	39	2	2	C	66	4	
" "	Stadium Road	Levee	40	20	2	-	C	66	4	Extend east to Procter St. Exten.
25. Bluebonnet Avenue	Gilham Circle	16th Street	80	36	2	[illegible]	E	80	4	
" "	16th Street	Woodworth Boulevard	80	36	2	2	A	60	3	
26. Texas 87	Taylors Bayou	Spur 214	60	16	2	-	E	80	4	
" "	Spur 214	16th Street	-	-	-	-	H	106	6	Relocate present highway from 16th Street to Spur 214 via Nederland Avenue and 19th Street
27. 16th Street	Nederland Avenue	Woodworth Boulevard	60	47	3	2	A	60	3	
" "	Woodworth Blvd.	9th Avenue	80	63	4	2	A	60	3	
" "	9th Avenue	Levee	100	2-33	4	2	G	100	6	Eliminate parking
28. Texas 87	Levee	Taft Avenue	120	26	2	-	G	100	6	
29. 17th Street	Nederland Avenue	9th Avenue	60	27	2	2	A	60	3	New connection to 16th Street between 9th Avenue and K.C.S.R.R.
30. 32nd Street	U.S. 69,96,287	5th Avenue	60	18	2	-	E	80	4	
" "	5th Avenue	Texas 347	40	18	2	-	E	80	4	Grade separation at K.C.S. R.R.
" "	Texas 347	F.M. 366	40-60 varies	19	2	-	E	80	4	
31. Hogaboom Road	Texas 347	F.M. 366	40-60 varies	20	2	-	E	80	4	Extend west to U.S. 69,96,287
32. 5th Street	Avenue B	F.M. 823	50	18	2	-	E	80	4	Extend east to Spur 136. Interchange at U.S. 69,96,287. Grade separation at K.C.S. R.R.
33. Spur 136	Texas 347	F.M. 366	75	22	2	-	H	106	6	
" "	F.M. 366	Avenue A	75	22	2	-	E	80	4	

APPENDIX (page three)

Street	From	To	Existing Conditions R-O-W	Existing Conditions Pavement Width	Existing Conditions Moving Lanes	Existing Conditions Parking Lanes	Suggested Cross Section	Proposed R-O-W	Proposed Moving Lanes	Remarks
34.F.M. 365	Corporate Limits	F.M. 823	varies	20	2	-	-	200	4	
" "	F.M. 823	U.S. 69,96,287	200	20	2	-	-	200	6	
" "	U.S. 69,96,287	F.M. 366	varies	20	2	-	H	106	6	
" "	F.M. 366	K.C.S. R.R.	80	20	2	-	H	106	6	
" "	K.C.S. R.R.	Port Neches Road	60	51	4	2	H	106	6	
35.Nederland Avenue	U.S. 69,96,287	Henderson Road	100 50-65	18	2	-	F	100	4	
" "	Henderson Road	12th Avenue	varies	18	2	-	E	80	4	
" "	12th Avenue	Texas 347	60	30	2	-	E	80	4	
" "	Texas 347	F.M. 366	60	18	2	-	E	80	4	
C. Parkways										
36.Thomas Boulevard	Grannis Avenue	K.C.S. R.R.	120	2-19	2	2	K	120	4	Extend west to Spur 214 Extension. Extend across K.C.S. R.R. to Houston Avenue
" "	Houston Avenue	Gilham Circle	120	2-19	2	2	K	120	4	
" "	Gilham Circle	9th Avenue	120	2-19	2	2	K	120	4	
37.Lakeshore Drive	Houston Avenue	Woodworth Boulevard	80	24	2	north side only	K	120	4	
38.Pleasure Island Rd.	Spur 214 Exten.	Bridge Approach	-	-	2	-	L	-	4	Extend east to end of Pleasure Island
39.Stilwell Blvd.	Lakeshore Drive	Procter Street	120	2-30	2	4	K	120	4	
" "	Procter Street	Gilham Circle	120	2-30	4	2	K	120	4	
" "	Gilham Circle	16th Street	120	2-30	2	2	K	120	4	
40.Woodworth Blvd.	Lakeshore Drive	4th Street	120	2-20	2	2	K	120	4	
" "	4th Street	Procter Street	120	2-20	1-SB 2-NB	1-SB	K	120	4	
" "	Procter Street	16th Street	120	2-28	4	2	K	120	4	

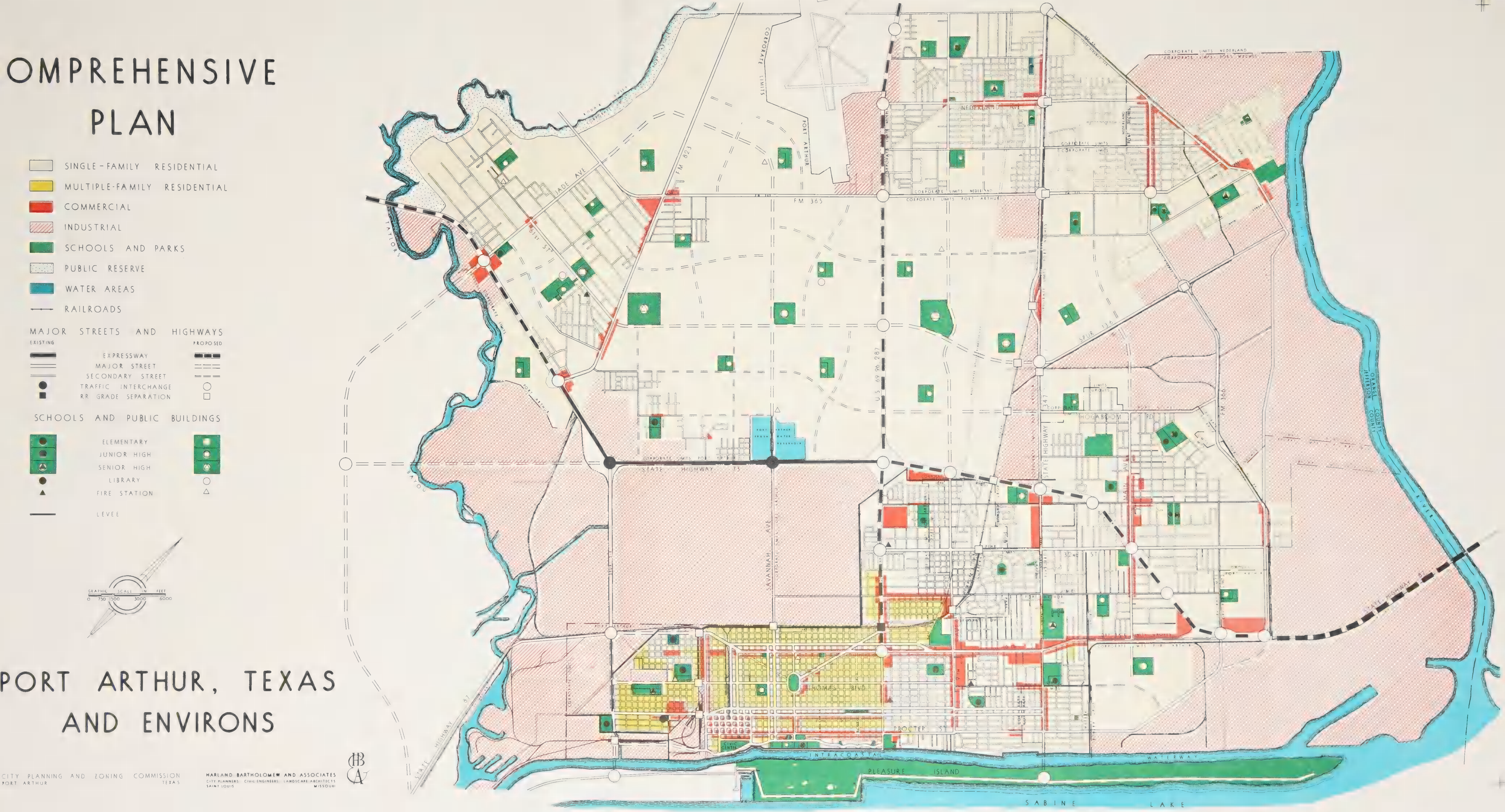
COMPREH
PLA



PORT ART
AND

CITY PLANNING AND ZONING CO
PORT ARTHUR

COMPREHENSIVE PLAN



PORT ARTHUR, TEXAS AND ENVIRONS

CITY PLANNING AND ZONING COMMISSION
PORT ARTHUR TEXAS

HARLAND BARTHOLOMEW AND ASSOCIATES
CITY PLANNERS CIVIL ENGINEERS LANDSCAPE ARCHITECTS
SAINT LOUIS MISSOURI

UNIVERSITY OF ILLINOIS-URBANA
711.40973 P834B C001
Comprehensive city plan Port Arthur
3 0112 088893117